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ABSTRACT

This document consists of 12 issues, an entire volume year, of the EDUTECH Report. The newsletter's purpose is to alert faculty and administrators to issues in educational technology. Each issue contains two feature articles, a page of news briefs, a preview of the upcoming issue, and a question and answer column. Most issues also contain brief quotations on education technology topics. The following cover articles appeared between April 1998-March 1999: (1) "In Support of Distance Learning" (Gene Sherron); (2) "Turning the AIS into a CIS"; (3) "IT Department Staffing Considerations"; (4) "Making the Most of Your Institution's Web Site"; (5) "Administrative Systems: Popular Myths"; (6) "Hot Issues 1998-99" (Thomas Warger); (7) "Invisible Warriors" (Albert L. LeDuc); (8) "Is Merging IT with the Library a Good Idea?"; (9) "The Pragmatist's Dream: Small Colleges and IT Success" (Richard A. Detweiler); (10) "Punished for Success" (Steven W. Gilbert); (11) "What Are We Missing in Instructional Technology?" (Thomas Warger); and (12) "The Case for Boole-A-Base" (Howard Strauss). (AEF)

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The EDUTECH Report
Volume 14
1998-1999

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THE EDUTECH REPORT

April 1998

Volume 14
Number 1

The Education Technology Newsletter for Faculty and Administrators

In Support of Distance Learning

Gene Sherron, Florida State University

So much is being written about distance education and distance learning (DL) these days that you would think that it is the "in" thing! And perhaps it is. Yet, as a participant in distance learning, my biggest concern is over support for DL. Instructors will teach. Students will learn. But unless both are mightily supported, it is a tough and lonely road.

The Need for Life-Long Learning

Just when you finish a rung in your educational ladder, it isn't long before you realize that there is a need for more. We are becoming a society in which continuous learning is central to effective participation as citizens and wage-earners. Telecommunications technologies are not only transforming our needs for education and training, but they are expanding our capacity to respond to those needs. Distance learning, with a long history of serving isolated and remote learners, is now emerging as part of mainstream education and training that can provide learning opportunities that are flexible and responsive to learners' needs.

The impetus for life-long learning was highlighted in *Transforming Higher Education: A Vision for Learning in the 21st Century* (Society for College and University Planning, 1995), where Michael Dolence and Donald Norris predict that the necessity for new models of distance learning will expand dramatically in the next century. They estimate that the amount of learning required by every information-age worker by the year 2000 will be the equivalent to that currently associated with 30 credit hours of instruction every seven years. I would translate that to another master's

continued on page 6

"Technology is changing very rapidly in this age of intelligent machines and global networks. It is vital that we begin to experiment with the new technologies and the educational structures they create. Students must be equipped to learn throughout their lifetime and educators must embrace change. Otherwise, we may face a world where technology is imposed upon us without regard for the consequences. Interdisciplinary collaboration between philosophers, scientists and artists is essential to the creation and use of appropriate technologies."

Leonardo Salamini
"InterLabs: An Interdisciplinary Laboratory Where Students Lead the Academic Computing Revolution"
T.H.E. Journal
March 1998

NEWSBRIEFS

TLTR SUMMER INSTITUTE

The fourth annual Teaching, Learning, and Technology Roundtable (TLTR) Summer Institute, "Visions, Paths, and Support," will be held this year in Phoenix from July 11–14. This event provides opportunities for teams to develop or advance their own local TLT Roundtables and to help shape the TLTR Program. Activities will help participants work more deeply in key areas: Organization and Leadership of Local Roundtables, Student Technology Assistant Programs, Flashlight Project (Evaluation and Assessment), Visions Worth Working Toward, and planning regional TLT activities.

The TLT Group's TLTR Program provides services and materials to help colleges and universities improve teaching and learning through more thoughtful and cost-effective uses of information technology. A local TLT Roundtable is a forum for planning, communication, and collaboration, with a primary focus on teaching and learning and a secondary focus on technology. Roundtables usually include a wide range of representatives of the faculty, administration, and other key services, and provide advice to the chief academic officer or other institutional leaders.

To receive a registration form, price guide, and agenda, contact Kristy Church, Meeting and Workshop Coordinator, The TLT Group at (202) 293-6440 ext. 51 or <church@tltgroup.org>.

NATIONAL INFORMATION LITERACY INSTITUTE

The National Information Literacy Institute (NILI) is a new initiative being sponsored by the Association of College & Research Libraries. An 11-month-old project, NILI is "dedicated to playing a leadership role in assisting individuals and institutions in integrating information literacy throughout the full spectrum of the educational process." It hopes to be a focus of the shift in libraries toward the recognition of the importance of information literacy by providing institutions programming that can assist in the design or redesign of an information literacy program, prepare librarians for teaching information literacy, and foster a dialogue among educators.

NILI's first program, to be offered in Summer 1999, will be an immersion program for new and mid-career librarians who are involved in the development and delivery of information literacy programs. For more information, see http://www.ala.org/acrl/nili/nilihp.html.

SYLLABUS98

Syllabus98 will be held July 25–31 at Sonoma State University in California. Conference themes will encompass the Internet and Teaching; Instructional Technology Support; Collaboration; Assessment and Evaluation of Education Technologies; Education Futures and Technology; and Distance Learning Paradigms. Programs will include pre- and post-conference workshops and seminars, general and concurrent sessions, poster sessions, faculty case studies, technology tutorials, and corporate exhibits.

For more information, see http://www.syllabus.com.

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Faculty and Technology

by Ed Neal, University of North Carolina at Chapel Hill

Recent discussions about the "laziness" of teachers in adopting new technology interest me for several reasons. First, the idea that teachers *ought to be* adopting technology presumes that it is an unalloyed good, like immunization against disease or using seat belts, rather than a phenomenon with decidedly mixed blessings. One of the recent postings to the AAHESGIT list dealt with the difficulty of motivating students in a distance learning environment, and many thoughtful proponents of technology have raised similar issues in other venues. If we assume that professors, on the whole, *do* know how to teach and that they are reasonably successful in this enterprise, can we not also assume that they are capable of judging whether a new method or new technology will help or hinder them?

Perhaps faculty members are slow to adopt the new technologies because they are not convinced that technology will improve learning by their students. There is little empirical research to show, for example, that using PowerPoint or the World Wide Web in teaching actually *improves learning*. Why should teachers risk their success on unproven methods?

Second, there is an artificial urgency to the whole enterprise: "Adopt now, or die!" What's the hurry? Pundits in higher education tell us that institutions such as the University of Phoenix are going to steal our students, and people like Peter Drucker (who should know better) are predicting "the end of the university" within 30 years. This hysteria has little basis in reality.

Looking at the figures available from the National Center for Educational Statistics, we can estimate that, in 1998, there are probably 15 million people enrolled in post-secondary institutions of all types. A little over half of them are over 22 years old—these are the students that adult and continuing education programs (including the University of Phoenix) are enrolling. The majority of students enrolled in the Open University in England, one of the most successful programs of this type, are between the ages of 25 and 45, with the median age in the mid-30s (current enrollment is 160,000). The Open University, even though it has been operating since 1969, has not caused the other universities in England to close down—their target audience is different. Why should we assume that the easy availability of non-residential education in the US will have any different outcome?

> ***Perhaps faculty members are slow to adopt the new technologies because they are not convinced that technology will improve learning by their students.***

Third, looking at the history of Instructional Television in the 1960s and 70s (the last wave of technology to hit education), we can see many unfortunate parallels with our current situation. In the 1960s, college administrators were dazzled by "instructional television" and spent millions on closed-circuit systems and production facilities. Eager proponents of ITV predicted that "the future will probably see something like 20 minutes out of the hour given to television at the elementary and secondary levels, and 30 minutes at the college level" and "as much as 50 percent of the college degree program will be available for credit via television" (Murphey and Gross, *Learning by Television*, 1966). But instructional TV failed to fulfill its promise to completely change education and was largely abandoned.

The fundamental error in this experiment was that no one asked the teachers how this technology might serve their instructional methods or contribute to better learning by their students—they were simply told to "get on the bandwagon."

In a rational world, the teachers themselves would make the decisions about whether and to what extent they (and their institutions) should invest time and money in technology. In the case of television, teachers did eventually find appropriate uses for it, and I'm confident they will find appropriate uses for the new technologies as well.

In short, I don't believe that teachers are "lazy" in adopting technology. I do believe that they have a healthy skepticism toward technology and the ability to judge when and how to incorporate it into their teaching. ■

Ed Neal is director of faculty development in the Center for Teaching and Learning at the University of North Carolina at Chapel Hill. This article is based on his recent posting to the AAHESGIT listserv and is used with permission. He can be reached at ed_neal@unc.edu.

The Internet and (

by Kenneth Hartma

Ask any dean of admissions how the Internet has impacted his/her department, and you are likely to hear one or more of the following responses:

"We are receiving hundreds of e-mail messages each week (day) from students all over the world seeking information and/or an application. It is difficult to respond quickly to all the e-mail inquiries." "Our admissions office Web page needs to be constantly updated, and we don't have the time or the staff to do the job. Our competitors are always introducing new features." "The technology changes so quickly. Just when we think we've created something that's attractive and compelling, we realize that our site is already behind the innovative curve."

While most colleges are engrossed in managing the internal obstacles and politics of maintaining an Internet presence, prospective students are increasingly relying on the Internet as a key source for both official and unofficial information about them.

Official information is information a college provides on its Web site to both enlighten and entice prospective students. This information is typically found on the college's admissions office home page and often includes campus photos, student and faculty testimonials, and an application and/or information on how to apply; in essence, it is an electronic version of the school's viewbook or catalogue.

Kenneth Hartman is a director with The College Board. *This article is based on one originally printed in the March/April 1998 issue of Change and is reprinted with permission.*

Unofficial information is information located both on and off the college's Web site that, while not formally sanctioned by the institution, often proves to be invaluable. Unofficial information about a campus can be obtained through e-mail, online student newspapers, personal home pages, faculty evaluations, and course listings.

Consider the following example of steps a prospective student can take to research an institution by using the Internet:

Mary finds the home page of a major state university she is considering, enters that institution's biology department Web site (where the e-mail addresses for biology faculty and for student members of the Biology Club are located) and conducts a random e-mail survey of matriculated biology students to ascertain their degree of satisfaction. She also evaluates the faculty members by perusing their personal Web pages, noting their stated research interests, recent publications (several articles are linked via hypertext), and other professional accomplishments.

Because she is concerned about the racial climate at the college, Mary uses the Internet to read back issues of the student newspaper, sorting for articles/opinion pieces on "race relations on campus." She e-mails a brief questionnaire to a number of matriculated black students and faculty after finding their addresses on the college's Black Student Union Web page. She then e-mails notes to recent black alumni whose addresses are available on the Black Alumni Association's Web page, and reviews the "hate crime" statistics online at the State Department of Education Web page.

Finally, she quickly surfs the institution's Web site to discover that not one of the institution's Nobel Prize winners or its Fulbright Scholars—touted on the admissions office home page—is scheduled to teach any undergraduate course in the upcoming fall and spring semesters. In fact, nearly half the instructors slated to teach freshman-level courses are either adjunct instructors, graduate students (whose names appear in the online graduate student directory), or simply listed as "TBA."

Imagine the implications of a prospective 17-year-old student e-mailing ten faculty members and not getting a response within three weeks, or—worse yet—receiving incorrect or unflattering information about the campus. Is your institution willing and able to monitor all the unofficial forums (news groups, bulletin boards) through which the merits of your college are being discussed by professors, matriculated students, parents, prospective students, and alumni in order to guarantee quality control?

Institutions can either be victims of cyber-information or they can take leadership positions by creating electronic opportunities for prospective and admitted students. The key to a successful cyberspace recruitment initiative is to use the full strength of the Internet, including mailing lists, chat rooms, Internet videoconferencing, the World Wide Web, and targeted electronic mail.

Mailing Lists. Maintaining communications with a prospective student—from the initial inquiry stage to matriculation—is essential to good enrollment management. Unfortunately, colleges have traditionally relied on a "recipe" for mailing

correspondence to students that is more reactive to prospective students' actions (such as requesting a college application or failing to return an admissions deposit) than proactive in addressing their concerns.

Electronic mailing lists can be created easily and inexpensively for targeted groups of students, with messages sent out at multiple times throughout the application and matriculation process. With just one e-mail message, hundreds (perhaps thousands) of prospective students can receive a message that is tailored to their interests and concerns and their stage in the admissions pipeline.

Internet Videoconferencing. Using videoconferencing technology, a college can conduct face-to-face admissions interviews with prospective students or allow current students to speak directly to high school students about their experiences on campus. Colleges can also use this technology to link, for example, one of their top chemistry professors with a class of Advanced Placement chemistry students. Having an interesting professor teach a lab or give dynamic lectures is bound to appeal to those budding scientists looking for a place to further their education. Moreover, colleges may wish to purchase video cameras (retail price of $150-$250) for their top feeder high schools across the country, under the condition that the schools organize monthly videoconferences/interviews.

Chat Rooms. Despite the popularity of chat rooms, especially among young adults, most colleges have not utilized chat rooms to converse with prospective students. Institutions could create their own chat rooms at different times for different purposes and populations. For instance, a chat room for the parents of high school seniors might involve personnel from the offices of admissions, financial aid, counseling, and public safety. Issues on the minds of today's parents would likely be raised during this chat session. Similarly, a chat room for prospective premed students might involve the dean of admissions, faculty from the biology and chemistry departments, a number of enrolled premed students, and a recent premed graduate who is now in medical school.

World Wide Web. The admissions office pages on the college's Web site should be designed to meet the prospective student's needs and wants. The "institution's message" must take center stage, but too much promotion and not enough substance will cause college-bound students to leave for another college's Web site.

Increasingly Net-savvy prospective students are likely to want hyperlinks to such locations as the e-mail addresses of enrolled students in their intended major and from their high school, links to useful "off-campus" sites (such as SAT-prep companies and federal, state, and private financial aid organizations), an online admissions application, and on-campus crime statistics, to name a few.

Additionally, colleges should consider new ways to promote their Web sites. Placing advertisements or "banners" on targeted external Web sites, for example, is an inexpensive way to link a key constituency to an institution's Web site. One promotional idea is to place a banner/link for the university's MBA program in the business section of the local online newspaper.

E-Mail. In an era when prospective students are bombarded with generic viewbooks and impersonal letters from dozens of colleges, it is nice for an admitted student to receive an e-mail message from a college president that says simply "Happy Thanksgiving" in November or "Happy Holidays" in December.

Because more and more high school students, adult students, and military personnel are using e-mail, colleges must solicit key individuals such as alumni, faculty, trustees and other elected officials, and special interest groups to assist with their targeted use of e-mail.

Final Advice

The ultimate goal of any college's Internet presence is to create a dialog with the prospective student. However, most institutions' Internet presence is one-dimensional, namely college-to-student. In order to take full advantage of these emerging technologies and the student expectations that accompany them, colleges must move beyond the development of a simple one-dimensional Web site and open the door to a variety of interactive opportunities.

This requires a commitment of resources, time, technology dollars, and people. Most of all, it requires an understanding and appreciation of the aforementioned Internet components and how they impact the relationship between an institution and its prospective students.

Institutions, under the leadership of their presidents, need to enhance their Web sites in a strategic manner if they hope to negotiate successfully the paradigm shift in recruitment that the Internet has created. ■

In Support of Distance Learning...

continued from page 1

degree every decade! This level of new learners would put one-seventh of the workforce in class each year. It could potentially add 20 to 28 million more full-time equivalent (FTE) students to our already capacity-strained campuses. Given this information, the question to be asked is not whether to use the technology, but rather how best to use it to help ourselves out.

Let's talk support

Most distance learners require support and guidance to make the most of their experience. Three services have been found to contribute to successful distance programs: (1) timely student feedback; (2) on-site support; and (3) access to library materials.

Remote learning resources is a new term we use to include the traditional distance learning components and systems, such as audio and video, plus the notion of text and file transfer from a remote computer. Over the past decade, important computer networking initiatives and an improvement in the quality of the public telephone system have paved the way for an explosion in the use of information databases that can be used in the classroom.

Getting support, when it's normal to resist change

As part of the support issue, those who are championing this adventure into distance education will encounter a resistance to change, and apprehension about mistakes. Yet changes will accelerate, and educators will make a few unproductive decisions about technology. Such is to be expected in developing a robust system; if philosophical and technological shifts in education are to survive, the system will have to be tolerant of stumbles.

Although it is true that distance education provides many institutional opportunities, its inherent fluidity tends to create numerous challenges in the process. Nowhere are the challenges more pivotal than in the area of the faculty and their support; there can be no doubt that the ultimate success or failure of the distance education enterprise is inextricably tied to the enthusiasm and continuing support of the faculty. Faculty members and administrators must work together in resolving the issues, policies, and biases that inhibit systematic use of distance education in meeting academic goals.

Regardless of the noble motivation, change is something we humans resist. Thus, going into a program of teaching at a distance will evoke reactions from the participants in ways that are hard to rationalize. Many reactions or responses are not rational, but we should be prepared for them and ready to work through them. Lack of know-how, loss of control, and loss of privacy are grounds for reluctance to embrace distance learning programs.

Learn your lessons well

Following are a few vignettes about what worked and did not work in a year of teaching using compressed video at Florida State University.

Some states like Florida have spent a considerable amount of money building an infrastructure to promote distance education. There are currently more than 100 ITFS (Instructional Television Fixed Services) channels licenced to educational institutions. A satellite network, called SUNSTAR, has placed steerable C and Ku band satellite receiving dishes in 35 sites, including one at each of the 28 community colleges service areas. This network allows the use of interactive videoconferences within 55 miles of every person in the state. As a result of its availability, the community colleges in Florida enroll more than 15,000 students annually in telecourses.

In 1996, Florida State University was ready for prime time. To fulfill a statewide mission in various fields, the president and provost selected the School of Information Studies' master's degree program as the pilot program to initiate distance learning from one end of the state to the other.

From the support perspective

Live or die by the Web site. To keep up with the Joneses, the Web site is as critical as a firm handshake, smiling face, and friendly greeting. We spent the equivalent of three FTE staff on the first Web site and doubled that effort for the second semester. It will make or break you, these days. The students don't measure your site by bells and whistles, but by its organization.

In the syllabus, students wanted the weekly assignments described clearly in one place. They liked the hot button links to everything. All reading/assignments that were not on the site were linked to the appropriate commercial site. Using links for cases, quizzes, exams, meant that all they had to do to turn in their homework was to hit that button and it went automatically to the course "bucket." To avoid those "did you get my assignment?" questions, we built in an automatic reply to the student that

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Gene Sherron is a professor at the School of Information Studies at Florida State University. *A version of this article first appeared in the March 1998 Syllabus, and is reprinted with permission.*

messaged them an acknowledgment. No paper moved between the sites and the main campus.

One if by land.... Some states like South Carolina have a transponder dedicated to public education. Going satellite, without the need to recover the cost of communication on the back of each course/student, makes sense. The best we could do was arrange for Switched 56 service through our State Division of Communications' network. This was the most cost effective approach but still expensive.

If one is good, two must be better. Build a lot of redundancy into your systems. Have a communications back-up. The same is true of software that tunes your system. Further, when a student sends homework assignments, have them go to one address where they can be graded and another on the site, just for back-up purposes.

The Librarian! It is usually accepted that the cornerstone of higher education is the library, and this reminds us of the plight of the distant leaner. The availability of adequate resources, beyond required texts, for extended student exploration and research is a key problem. In a resource-rich nation, students do have the option of using the local library. But even where libraries are relatively accessible, shortages of book copies, of available staff, and limited hours of operation convenient to distance students pose serious handicaps. To get around this problem, our program has been fairly successful in identifying all referenced materials on the Web site and making links where possible.

From the faculty perspective — It's a lot of work! What worked in a classroom with 30 students won't do for a DL situation; a total redesign is needed. Many faculty will resist this and regard it as just a lot of work for little return. Our administration paid for the use of doctoral students in instructional design to assist the faculty. This added workload, even with added resources, is probably among the toughest issues in DL, because the load is ultimately on the person on the firing line, the faculty member. Usually, there is no recognition for the extra effort needed to teach in this format, meaning it doesn't contribute to promotion and tenure decisions. Further, spending time in developing DL courses could even be so demanding on junior faculty members as to detract from their ability to be competitive. If the faculty are to embrace distance education, the administration must consistently address traditional faculty issues with fresh ideas and innovative approaches.

When I think of our experiences in distance education, I am reminded of the phrase "build it and they will come." Such is the case with DL; if we build the infrastructure, everything else will follow. By the same token, if we do not make that investment, including support, the entire program will fizzle out. ■

"Myths: 1) All young people like computers. [Visit a mall!] 2) All faculty wish technology would go away [or just stabilize]. 3) You'll be satisfied with your personal computer for several years. 4) The newest technology will be easier to use and more reliable than what you're used to. 5) The Goal is Anytime, Anywhere Education. 6) There are many millions of self-disciplined self-motivated learners. 7) Education is just like other industries. 8) Industry leaders always know what they're doing. 9) Someone really understands all the dimensions of face-to-face communications—and knows which aspects can be fully replaced by telecommunications. 10) "The Market" really knows what it wants.

Steven Gilbert
From a presentation at the Annual Meeting of the Association of American Publishers
March 1998

In Future Issues

- *Ten things we all used to believe about administrative systems*
- *What the president is looking for from information technology*
- *The changing face of outsourcing: consortium arrangements*

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EDUTECH RESPONDS

Q. As a small liberal arts school, we are not fully convinced yet that we ought to wire our residence halls for campus network and Internet access. Several of our faculty members have put forth cogent arguments that the majority of the faculty is not ready for such a step, especially in terms of shaping the curriculum, and that if we do it to "stay competitive," we might be doing it for the wrong reason. Are we the last school left on earth that has not wired its dorms?

A. *Not at all, but the numbers are rapidly dwindling. The real point is that wiring the dorms has the potential of great educational benefit; it represents a wonderful and unique opportunity to add to the set of resources that a college has and uses to educate its students. As to the issue of competitiveness, it might be open to debate about whether that is a good reason or a bad reason, but you ignore these very real pressures at your peril. It is probably unlikely that a high school senior today chooses a liberal arts college solely or even primarily on the strength of its technology environment, but it is clear that this is becoming a increasingly important part of the mixture of reasons, both objective and subjective, that a student uses to makes his or her choice.*

Q. We're trying to put together a proposal review and grant process whereby our academic computing committee has a small budget each year and can allocate it according to the merits of the proposals they receive from faculty members. We're having some difficulty, however, in coming up with appropriate criteria, and are stumped by questions such as whether computer equipment for the computer science department is more "worthy" of funding than a computer for someone in the English department.

A. *This is very tricky business, and one thing you might want to consider is establishing a "baseline" for all faculty members, regardless of department. This would be certain desktop hardware and software that no one would need to justify or make a proposal for, but would just automatically come with the job, like a desk and a telephone. It can certainly be argued that desktop computers fall into this category of necessity now. Then the grant money can be used for items beyond the baseline.*

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The Education Technology Newsletter for Faculty and Administrators

Turning the *AIS* Into a *CIS*

Just about every college or university today has an AIS: an administrative information system. Generally, this complex, sophisticated, and multi-faceted software takes care of most of the "business" side of the institution: admitting students, paying bills, raising money from alumni, issuing paychecks, producing transcripts. Whether the system was purchased from a vendor or developed in-house, there is no doubt that it required—and continues to require—a very large commitment of resources, both money and effort, to make it a success.

But what do we mean by "success"? To be sure, some campuses have achieved a good amount of operational efficiency in their major or core administrative offices; others have been able to cut down substantially on the paper passed among administrators to accomplish their work. Still others have enabled some end users to write their own reports and execute their own queries, reaching a level of independence that would not be possible without a good AIS. But is this enough? Is this really sufficient benefit? Do these achievements and accomplishments justify the huge amount of resources that it takes to make them possible?

The answer lies in the as yet largely unrealized potential of this software. Most of our current administrative systems probably would not fare very well in a rigorous cost/benefit analysis. The fact is that in order to fully justify the investment, in order to realize the large-scale payoff, a transition needs to be effected from an *administrative* information system to a *campus* information system—a system that has new uses, new users, and new benefits.

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"Most of us are open to the seductive quality of electronic gadgetry and the benefits that accrue from its use. The detrimental aspects are conveniently ignored. Even when the system crashes, we deceive ourselves into believing that this is merely a temporary setback, especially when we are again online within hours or days of the initial crisis. When not merely the system but much of the entire world that has evolved from the implementation of technologies crashes, it may be too late to change matters."

Robert Hauptman
"Information Technology:
Seduction & Peril"
Educom Review
May/June 1998

NEWSBRIEFS

IMS STANDARDS FOR ONLINE COURSE MATERIALS

The goal of Educom's Instructional Management Systems (IMS) project is the widespread adoption of a set of open standards for Internet-based education. To support that goal, Educom has just released technologies that will support a new digital economy for education. These technical specifications for how learning materials will flow over the Internet, and for how organizations and individual learners will manage the learning process, already have broad support among industry and among leaders in higher education, training, government, and K-12 schools. Educom is also making available an example implementation of an instructional management system that illustrates many of the specifications.

Twenty-eight organizations have made substantial investments in the IMS project and continue active involvement in the technical work, in advanced work with the example implementation, as well as in internal development of products for the new digital education marketplace. The specifications are being released for a 90-day period of public comment. After that period, they will be submitted to the Institute of Electrical and Electronics Engineers (IEEE) to begin the process of establishing an international standard. For more information on the IMS project, see http://www.imsproject.org.

ASSESSING NEW TECHNOLOGIES IN ARTS AND HUMANITIES

"Assessing New Technologies in Arts and Humanities," a conference to be held at New York University on October 9–1, will bring together teachers of the arts, education administrators and supervisors, technological innovators and developers of programs, artists, arts therapists, humanists, museum and gallery personnel, foundation directors/personnel, and critics with an interest in technology and education. The purpose of the conference is to assess the use of new technologies in: Making Arts (Technology and Creativity); Performing Arts; Arts and Humanities Education (Classroom, Studio, Environment, Technologically-Assisted Instruction, and Distance Learning); and Creative Arts Therapy (Diagnosis and Treatment). For more information, see http://www.nyu.edu/education/cahe/caheconf.html.

CALL FOR PROPOSALS: COMPUTERS ON CAMPUS

The national conference, "Computers on Campus," will be held November 8–11 at the Ocean Creek Resort in Myrtle Beach, South Carolina. This is the twelfth in a series of conferences that provides a national forum for showcasing computer-based instructional models, discussing successful experiences in computer networking, making effective use of computer support in academic assessment, and using computer technology to enhance total student development. In the past eleven years thousands of higher education professionals have convened to learn from each other's varied experiences, to exchange ideas about academic computing, to gain valuable insights into implementing the latest technology, to identify new resources, and to find solutions to the issues and problems which face us all.

For proposal guidelines and registration information, send e-mail to confs@gwm.sc.edu or see http://www.sc.edu/conted/coc.htm.

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Turning the *AIS* Into a *CIS*...

continued from page 1

How do you turn an AIS into a CIS? There are several aspects to consider.

New and different users

We used to think of administrative users as mainly a group consisting of the "core" administrative offices: admissions, registrar, financial aid, student services, the business office, and alumni/development. But that is no longer true. We have many new users coming on the scene all the time, such as personnel, physical plant, deans' offices, residence life, athletics, and many others. These administrators need system access, to be sure, but we also now have faculty and students who need access as well.

But it is not just the number of users that is changing, it is also the nature of the users. We now have many people who, not being in a core administrative office, do not use the system every day. We have faculty who may need to access student records for advising purposes on an intermittent basis. We have deans and vice presidents who may need information about enrollment trends or the impact of various financial aid strategies at important intervals. We have students who may want to look up their grades once in a while. These kinds of users typically do not use the system in the same way that daily users do.

System interface

What does this say about the system interface? The new campus users tend to need a much friendlier system environment, a more intuitive environment, one that does not demand a lengthy training process or a thick user manual to do what they need to do. They don't have the same kind of reinforcement in system use that a daily user has, nor do they typically have the patience that comes from having gotten used to the way screens look or the way they have to enter commands in order to use the system successfully.

This goes beyond just cosmetics. It is not only the way screens look—graphical, for example, instead of text-based—but it also has to do with the screens themselves. A faculty member trying to get information about the funds remaining in his grant and what has been expended to date will typically need a screen for this information that is different from what the folks in the accounting office use. A support person in the Chemistry department who needs to enter into the system a requisition will often not find useful the screen that someone in the purchasing department uses.

The new campus users tend to need a much friendlier system environment, a more intuitive environment, one that does not demand a lengthy training process or a thick user manual to do what they need to do.

Of course, the greatest area of need is usually in reporting. End-user reporting is, at best, still a difficult process requiring not only knowledge of the reporting tool but an understanding of the data structure as well. It is unrealistic to expect that an intermittent user of the information system will be able to create reports with the usual array of tools that we make available in our systems. Instead of offering these tools, we need to be creating ways for these new users to access and report on data, through, for example, data warehouses or Web-based interfaces.

Support

We have learned a great deal over the years about how to support the core administrative offices, providing training, troubleshooting, new screens and reports, and new system features. But our approach needs to be different for the new users; they have different needs and different priorities. They also tend to have lower tolerance levels for things like system bugs or having to go to training sessions.

Another aspect is attitude; it is not unusual to find that a new user has some serious misconceptions about the system based on campus gossip or rumors. They may have heard that the system is full of bugs (from someone who may have had a rough time during the initial implementation) or that it is hard to use (from someone who doesn't like computers). Often that "baggage" has to be overcome before the person can become a really productive system user.

The real payoff for the investment we have made over the years in systems will happen when everyone on campus feels comfortable using the system, when all sorts of users can get something useful out of the system, and when the system is truly serving the needs of the whole campus. But this won't happen by itself—it is not a natural evolution. We need to make it happen in a proactive way, turning the systems we have into real *campus* information systems. ■

BEST COPY AVAILABLE

Until We M

by Howard Strauss,

Cohen: That was interesting. And totally useless.
Rendell: Like most meetings.
Cohen: No. Most meetings aren't interesting.

Buzz Bissinger
A Prayer For The City
Random House, 1997

Glancing at her watch, Susan, manager of the Help Desk sees that it's exactly 10:30 a.m. This morning, like every Wednesday morning at 10:30 a.m., Susan attends the Information Technology Center (ITC) weekly staff meeting. Grabbing her empty cup she heads for the office coffeepot. On her way she pokes her head into the Software Evaluation manager's office.

"Liz, it's that time again," she shouts to Elizabeth who is trying to get a few last minute things done on her computer. Liz groans in acknowledgment but continues to work furiously at her computer without even looking up.

At the coffeepot a few staff members gather, anxious to get their supply of coffee for the long meeting ahead, though the main topic of conversation is Liz's new minivan. "I really like the fact that it has four doors," says Dale. "Did Liz buy that over the net?" Before the question can be answered, Steve, the manager of Network Services interrupts with a crisis to which he ascribes great importance.

"On no, we're out of decaf again!" he says. "Everyone knows I can't drink that other horrible stuff. Who forgot to start the pot of decaf?"

Howard Strauss is Manager of Advanced Applications at Princeton University and a frequent contributor to this publication.

Steve busies himself with getting a new pot of decaffeinated coffee started. "See you at the meeting," he says. "I'll get this going and be down there in a few minutes. We'll send Alice up to get it when it's ready."

The ITC Weekly Staff Meeting
Wednesday 10:30 am.

Karen: **Report from the cabinet meeting.**
Alice**: Administrative issues. Campus fund drive.**
Dale**: Internet 2.**
Susan**: Help-desk report.**
Liz**: Comdex trip report.**
Mark**: The latest on the virus attack.**
Steve**: Networking issues.**
All**: New business, old business.**
Karen**: Wrap up.**

Susan and the others except for Steve head down to Karen's office where, lacking a real conference room, the meeting is always held. Mark, the head of systems, who always gets to the meeting ten minutes ahead of time is already there and absorbed in something on his laptop. Over the next ten minutes the other attendees trickle in, including Steve who demands that the "decaf coffee issue" be added to today's meeting agenda.

Karen finishes up the phone call she is on, and starts the meeting. It is 10:49, which is actually an early start for this weekly 10:30 meeting. But a closer look at the meeting reveals that, despite its serious-sounding agenda and list of high-level attendees, it is really not a meeting at all. At best it is an attempt at a presentation. Actually it is just a social gathering of the ITC staff.

Meetings and presentations serve quite different purposes and therefore require different rules. The purpose of a presentation is to educate, enlighten, and entertain. The purpose of almost all meetings (an exception will be explained later) is to make decisions or to create a product collectively. While decisions may be made as the result of presentations, decisions are not usually made during a presentation.

No one should attend a presentation or meeting who doesn't have to be there and doesn't want to be there. Forcing someone to attend a meeting or presentation, like leading a horse to water, will only get them to the right place. It will not necessarily get them to participate in any meaningful way. Having someone at a meeting who is not essential is a waste of their time and a waste of time for other attendees.

No doubt you attend meetings and presentations that you'd rather avoid. That may be a sign of your failure as an employee to be a willing part of a team (in which case management should take corrective measures), but more likely it is because the meetings and presentations are structured to guarantee that your time will not be used effectively.

eet Again

inceton University

We are all destined to spend countless hours in meetings and presentations. Most of us will also be responsible for arranging and running them. There is no escaping the fact that they are essential, but they are also very time-consuming. Our challenge is to make this huge expenditure of time cost-effective. If we can do that, the attendees at our meetings and presentations will find it more productive to play an active role than to solve word puzzles, doodle, or think about past and future vacations.

Presentations

Looking at the agenda for the ITC meeting there is nothing to suggest that any decision will be made at any point during it. Karen is just giving a report on a previous cabinet meeting. Hopefully the cabinet actually made some decisions that will now be reported to the staff. While the staff might be horrified (or overjoyed) at the cabinet's plans and might even take some action in the future, the ITC meeting is not the place where the cabinet's decisions will be amended. If no decisions are made and no product (or even part of a product) is created, it is not a meeting. If attendees do not learn something they need to know, it is not even a presentation. If it is neither of these and is not just a social gathering then why was this group of high-powered, highly compensated people taken away from the important (one would hope) work they were doing?

Alice, the office administrator will talk about "administrative issues," whatever they are. Keeping the pot of decaf filled might fall under this category. Whatever Alice has to say about administrative issues, they might better be discussed between Alice and Karen without gobbling up the time of this large group of high-powered people. If the premise that employees' time should not be wasted is accepted, then the only people at a presentation should be those managing it, those giving the presentation, and the people who need the particular information being presented. People just peripherally interested can get summaries from attendees or from the notes, handouts, and material from the meeting posted on the Web.

Going through the entire agenda, we see that there is one presentation after another but no sign of any decision making. This is the ITC's weekly presentation to its own staff, not its staff meeting. Of course having weekly presentations or weekly social gatherings and calling them staff meetings means that the ITC may never have the real staff meetings it might need.

Assuming the material presented in this "staff meeting" is something the entire staff should know, there may be other less time-wasting ways to disseminate it. Since minutes (a record of what was accomplished) should be taken in any meeting, instead of Karen presenting a report from the cabinet meeting, the minutes could be distributed to the staff. That could be done via e-mail, or better yet, a private Web site where the past and current minutes of the cabinet meetings could be stored so that those really interested in reading the minutes could do so. In fact when any presentation is proposed, a lower-cost method (in dollars and employee time) of disseminating the material should be considered. Electronic means of making material available should be preferred over circulating paper.

Whether you are having a meeting or a presentation, these gatherings should have the highest cost/benefit possible. No meeting or presentation should waste any staff member's time. A meeting or presentation must start on time, and equally important, must end on time. Liz has a watch and knows when the ITC meeting starts. No one should need to remind her. If getting coffee is more important than starting a meeting, then the meeting cannot really be all that important. That's also the message that is sent when Karen takes a phone call during the meeting. She seems to be saying, "It's ok for you folks to wait around while I take this phone call which is worth more than your time."

Since the purpose of a presentation is to convey information, only those people doing the presentation and those who need to know the information should attend. Is it useful to have Alice sit though Steve's talk about network issues? Who really needs to hear Liz's trip report on Comdex? And why does Alice need to sit through this whole presentation? If she is really needed for part of it, schedule her for that part and let her leave when she is no longer needed. We assume she has more important things to do than bring Steve his coffee.

Meetings

A meeting requires a goal (or goals), a group of people who are all essential to achieving that goal (or goals), a leader, a timekeeper, a minutes-taker, and a real agenda. One person may take care of more than one of these tasks, but all of these functions are critical for an effective meeting.

The agenda should indicate who called the meeting, usually the leader, and the expected outcome of

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Until We Meet Again...

continued from page 5

the meeting—the goal or goals. Defining the wrong goals can ensure the failure of a meeting even before the agenda has been created. Goals should contain active verbs such as "decide," "determine," "produce," "create," "select," and so forth. For example: "decide on a new price for network services"; "determine the best solution for the overcrowded computer labs"; "create an installation plan for our fiber backbone"; "select new software for our help desk." It is easy to be fooled by very similar sounding verbs that almost guarantee that a meeting will only lead to yet another meeting, not to anything useful. For example, verbs such as "learn," "review," "recap," "understand," "study," "discuss," and others should not be goals in a meeting.

Setting the goal correctly also helps determine who should attend the meeting. In the case above, if no one at the meeting can actually decide what changes should be made to the system then it will be impossible to achieve this goal. The only people who should be invited to the meeting are those who can make this decision and those whose input is essential to reach it. Folks who are just peripherally interested, would like to know what's decided, or have worked on the system in the past (and have attended every meeting about it) should skip the meeting and read the minutes at their leisure.

The leader's job is to ensure that the purpose of the meeting is achieved. As the meeting's facilitator, the leader is also responsible for making the meeting run smoothly. If Steve is off on an interesting but non-essential tangent, the leader must get him back on track. Unproductive conflicts that arise in a meeting must be quickly resolved by the leader. If the meeting runs into a brick wall, the leader must find some creative way to get past it or break through it. If the leader senses that the group is heading towards an inappropriate, incorrect, or less than the best possible solution, then it is the leader's job to get the meeting redirected and keep it there.

Keeping time

The timekeeper has a very simple job that consists of just watching the time and reminding the leader that, for example, there is only three minutes left for the current topic. The timekeeper is not the facilitator and it is not the timekeeper's job to find ways to keep the meeting on schedule—just to ensure that the attendees are aware of the time and how it relates to the agenda.

The minutes-taker's job is to create a contemporaneous record of what happened at the meeting. The minutes are not like a courtroom transcript. It's not important who said each thing along the way to making a decision, but it is important to record everything anyone agreed on or agreed to do. The minutes should include the agenda and should summarize the outcome of each item on it. A person who did not attend the meeting should be able to tell from the minutes every significant thing that happened. After review by the leader, the minutes should be distributed (via e-mail, the Web, or in some other electronic form) to at least all attendees.

The agenda

Having structured the meeting properly, the agenda will be easy to produce. The agenda should identify the leader, the goals of the meeting, when and where it will meet, who will attend, and when the meeting will end. The agenda should indicate who is taking the minutes so that meeting time isn't spent squabbling about it or realizing that no one was assigned to take minutes.

For each item on the agenda you'll need the start and end times, what the item is, who is going to lead the discussion, and what outcome is expected. For example, an agenda item might be: "Time: 2:00 to 2:30 - Item: Capital Budget - Person: Elizabeth - Action: Create a list of items for the FY98 capital budget." Don't be fooled by things that masquerade as agenda items. For example: "Time: 2:00 - Item: Review Budget - Person: All - Action: Understand budget." This may not seem very different from the first example, but the time is open-ended, the person leading the discussion is everyone (which means no one is responsible), and the outcome is that everyone will understand the budget, whatever that means.

Having a good agenda is not the last step in having a good meeting. The agenda must be distributed to all attendees far enough in advance of a meeting for them to properly do their homework. If Elizabeth is going to review the FY98 capital budget she'll need time to prepare. She probably will want to look at previous budgets, check on how constrained money will be this year, and think about some of the critical things that she'll propose for the budget. If something of any importance is going to be decided in a meeting, all of the participants will have lots of homework to do and therefore will need enough advance notice to get it done—before the meeting.

Lunch-time meetings

The purpose, as you now know, of nearly all meetings is to make deci-

sions or to create a product collectively. An exception is mealtime meetings. By mealtime meetings I don't mean meetings in which some food is incidentally brought in. Mealtime meetings are "Let's meet over lunch" meetings. While we all know that every significant twentieth-century invention had its genesis as a sketch on the corner of a napkin in some restaurant, when two or more people eat together the event's purpose is more social than nutritional. That is not a good environment in which to make critical decisions.

Mealtime meetings are really social events, not meetings, whose purpose is to achieve some social goal. Maybe you want to establish a better relationship with a sales rep. Perhaps you'd like a new employee to meet some high-level managers in a relaxed atmosphere. But don't kid yourself about using these to solve problems. In the last case for example, this new employee will be worrying about using the correct fork, ordering a cheeseburger when the VP is a vegetarian gourmet, not drinking too much wine, and trying to eat and appear technically savvy at the same time—all without getting catsup on his tie.

For a mealtime meeting you should understand the real purpose of the meeting. If you have an agenda, make it informal and be flexible about changing it on the fly or ignoring it altogether. Don't try to make decisions; instead, work towards the social purpose you defined for the meeting. And use your napkins for their intended purpose. Your idea for the next Intel is better planned in your office on your blackboard or computer.

When shall we meet again?—— Too soon from now you'll be off to yet another meeting. You probably attend too many meetings and if they are like most, they accomplish little. Yet meetings done right are wonderful things. They encourage the exchange of ideas and allow the synergy of many to solve problems that no one person could ever have done alone. As you strive to make your organization more effective you may find that the difference between useless and useful meetings determines whether that battle is lost or won.

Witch 1:
When shall we three meet again
In thunder, lightning, or in rain?

Witch 2:
When the hurlyburly 's done,
When the battle 's lost and won.

William Shakespeare
Macbeth

"At some crucial moment in the 19th century, the means of production replaced the meaningfulness of the product as a subject of intellectual discourse. Recently, the same thing occurred with technology. What is now of critical moment is information technology (the means of communication), and not the thought communicated. Process has replaced substance. There was a time when the intellectually vibrant discussed and fought over evolution, cosmology, the Piltdown Man or political persuasions. Now the crux of much discourse is the system one favors, the software one uses, or the e-mail one disgorges. Intellection has been technologized."

Robert Hauptman
St. Cloud State University
"Information Technology: Seduction & Peril"
Educom Review
May/June 1998

In Future Issues

- *Working on the IT department's service orientation*
- *What the president is looking for from information technology*
- *Points and issues for new IT managers to consider*

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EDUTECH RESPONDS

Q. We are a very small college and have tried to leverage our resources as much as possible over the years. For example, the person in charge of academic computing is also a full-time faculty member. It's getting more difficult, however, for this person to get everything done. How will we know when it's time to create a new position?

A. *It is a fact of life in a small college that everyone is expected to be flexible, to wear many hats, to work long hours. This is often especially true of technology when it first starts on a campus. People "volunteer" because of their skills and interests and end up supporting IT on top of other responsibilities. A problem develops, however, as the campus becomes more and more dependent on technology. The needs become more urgent and harder to postpone until the person with multiple duties is available. It also becomes harder for the IT person to shift gears among the different kinds of projects that are needed. The real tip-off is when the short-term, urgent demands begin to overwhelm the longer-term, proactive duties (such as planning for the future, encouraging academic use of computing, and taking part in committee deliberations)—that's when you'll know you need to create and hire into a new position.*

Q. I know for sure that our programming staff can do a better job of creating systems for our users than any outside vendor can, and we've been proving this for years. However, some folks at the university are looking at packages right now. I believe that any resources we might spend on a commercial package would be much better spent on hiring enough in-house programming staff for us to do the job ourselves. How do I make this case?

A. *It is a case that in and of itself is a difficult one to make these days, but there is another aspect to this you may be overlooking. It's not just programming resources that are necessary for building and maintaining systems, it's user resources as well. How many users today have the time, inclination, and skills to write specifications for you, especially for functions that have already been figured out by others? A good package supplies not just the programming code, it supplies the design objectives as well—that alone can justify its cost.*

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The Education Technology Newsletter for Faculty and Administrators

IT Department Staffing Considerations

Staffing questions in the typical higher education information technology department arise constantly. How many staff is enough? Is there ever enough? How should the staff be allocated and assigned? How do we justify additional positions? How do we make a case for not cutting staff in our department? Are there ratios to follow based on numbers of users, numbers of computers, Educational and General budget, comparisons to competitive institutions? Although ratios like these can be helpful, deciding how many staff are actually needed in *your* department in *your* institution can be a complicated matter.

Factors to consider

It has to start, of course, with the needs of the institution. Most colleges and universities today are experiencing rapid growth, both in the number of technology users and in the sophistication of their applications. Every new user, every new application, every new piece of equipment or network connection means an increase in the need for support. So the demand for IT staff is clearly growing, but at the same time, so is the pressure to keep IT costs down. This makes the need to determine the right staffing levels especially important, and there are a number of factors to consider in making this determination.

How much do you want to accomplish? For instance, you may be able to get by with only a small number of people to support administrative computing (some small colleges only have one person doing this), but if you do, chances are that you won't make very powerful use of your system and your data. Maybe you can get by with just a single person or only a few people to support academic

continued on page 3

"There's a real need for focusing on how people use the information we transmit in academic environments, but because pedagogy and teaching and learning are worlds unto themselves, I think the information ecology concept is less applicable there than in the area of administrative information systems. Thinking seriously about it, there are probably more attempts to make administrative information environments better than where information, knowledge, and learning are the heart of the matter."

Thomas Davenport
University of Texas, Austin
"Managing Knowledge"
CAUSE/EFFECT
Vol. 21 No. 1, 1998

NEWSBRIEFS

EDUCOM'98: MAKING THE CONNECTIONS

EDUCOM'98, hosted by the University of Central Florida, will be held this year in Orlando, Florida from October 13–16. Designed for academic computing professionals, faculty, librarians, and policymakers and planners in higher education, the conference this year will focus on connecting people and services; connecting electronic communities; connecting policies, ethics, and values; connecting vision and reality; connecting networks and applications; connecting people and information; and hot topics. There will also be pre-conference seminars on topics such as strategic planning, the theoretical foundations of multimedia, managing the changing roles of information technologists, and knowledge-management systems for teaching and learning on the Internet. A post-conference forum on distributed learning is also planned.

For a full description of the conference and all associated activities, see http://educom.edu/conf/98.

SUMMER READING FROM CAUSE

The eighteenth and final entry in the CAUSE Professional Paper Series, *Integrating Computing and Library Services*, by Arnold Hirshon of Lehigh University, has just been released. Not necessarily advocating organizational integration for all colleges and universities, the paper does serve as a guide for exploring the important and relevant issues involved. Jane Ryland, CAUSE president, described the paper in a recent announcement: "Even if your institution is not thinking about such an integration, you will find much of value in this paper. The section on recruiting and hiring, for example, addresses issues that relate to many managerial search processes. And the advice Hirshon offers in the longest section of the paper, 'The New Organization: First Steps,' has great relevance for any new or revamped organization—including the association that will evolve within the next few months out of consolidation of CAUSE and Educom."

For more information and to order the paper, see http://www.cause.org/information-resources/ir-library/abstracts/pub3018.html.

WEBDEVSHARE98

The WebdevShare98 conference will be held this year on the Bloomington campus of Indiana University. The conference is for managers and professionals in higher education and is focused on the development and delivery of effective Web-based administrative systems. This year's conference will cover topics such as data warehousing, user interfaces, decision-support systems, on-line transaction processing, management information systems, Web security, and professional issues. Presentations will take the form of lectures, panel discussions, demonstrations, showcases, and workshops.

For more information, call (812) 855-9905 or see the conference Website at http://webdev.indiana.edu.

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Thank You For Calling...

The Perfectly Automated Help Desk

Ring... Ring... Ring... Ring... Ring... Ring... Ring... Ring... Ring... Ring... Ring...

Thank you for calling Technical Support. All of our technicians are currently busy helping people even less competent than you, so please hold for the next available technician. The waiting time is now estimated at between fifteen minutes and eternity. In order to expedite your call, please punch your 63-digit product identification number onto your telephone touch pad, followed by your product serial number, which can be found in a secret compartment inside your computer where, for security purposes, it is printed in the smallest typeface known to mankind. Do that now.

(Lengthy excerpt from Gustav Mahler's *Lugubrious* Symphony in C Minor)

Thank you again for calling Technical Support. We recommend that you sit at your computer, preferably turning it on at some point, and have at hand all your floppy disks, CD-ROM disks, computer manuals and original packing materials in order to allow the technician to aid you in the unlikely event that he ever takes your call. It would also be helpful for you to refrain from sobbing while explaining your problem to the technician. Shouting obscene threats will cause you to be disconnected and blackballed from further communication with Technical Support, not only from ours but that of every other electronics-related firm in the industrialized world.

(Medley of Hootie and the Blowfish hits rendered by the Mormon Tabernacle Choir)

Thank you once again for calling Technical Support. In order to enable us to better assist you, it would be helpful to know more about you and your equipment. Have you called Technical Support before? If you have, please press the numeral "one" on your telephone touchpad. If not, press the numeral "two." If you are not sure, using the letters on your touchpad, spell out the phrase: "I am confused and despondent and quickly losing the will to live." Once you have finished, hang up your phone and make arrangements to sell your computer because by the time the technician takes your call, it will be obsolete, and you will be too senile to use it anyway.

(Rangoon Opera Company's classic 1963 recording of Wagner's *Ring Cycle* in its entirety)

Thank you for calling Technical Support. Unfortunately, all of our technicians just went out for lunch. This means that to the estimated waiting time we gave you earlier, you may now add at least another two hours.

(Wayne Newton singing *Danke Schoen* 1,743 times)

Thank you for calling Technical Support. Before talking to the technician about your problem and risking the possibility that you may be wasting his valuable time, please ask yourself the following questions: If my monitor screen is dark, is it possible I have forgotten to plug in my computer or, alternately, that I have been suddenly struck blind? Have I exhausted every possible means of help before utilizing the sacred, last-resort-only telephone option? Have I sent a fax to Fast Fax Technical Support? Have I consulted my manual? Have I read the Read-Me notice on the floppy disk? Have I called up my know-it-all geek cousin who I can't stand but who can probably fix this thing for me in under five minutes? Have I given the central processing unit of my computer a good, solid whack? If you cannot honestly answer "yes" to all these questions, please get off the line immediately so that our overworked technicians can help those truly desperate customers whose suffering is so much greater than yours.

(Recording of Tibetan monks performing a six-day chant celebrating the reincarnation of one of their recently deceased colleagues into a higher life form)

Thank you for calling Technical Support. You may not be aware that this week we are featuring a discount on a number of popular CD-ROM titles you may wish to purchase, such as the best-selling Porn Doubler, which allows you to access erotic material from the Internet twice as fast. If you would like to hear all 26,000 titles read to you, shout "Yes! Yes! Yes!" into the telephone now. This will not cause you to lose your place in line for Technical Support; in fact it may jump you ahead of several other callers.

(Tape loop of background music from the soundtrack of *Johnny Mnemonic* starring Keanu Reeves)

continued on page 7

This piece circulated on the Internet recently. We tracked it down as far as the editors of The Shore Journal in Maryland, who declared it to be in the "public domain." If anyone has information on the author, we would be glad to attribute him or her.

Case Study: The

Institutional Stand

This case was suggested by a number of sources, including a posting to the AAHE who raised some of these issues in a generic way without identifying brands or con and another listserv posting by Joseph Swonk, a faculty member at Rappahann

Proposal to the Information Technology Policy Committee
by
Emily Dadoor
Executive Director of Information Technology Services

I am writing this report to seek the ITPC's approval for a new policy regarding the institution's approach to hardware support for information technology. Up to now, we have provided support for all major brands of hardware, leaving it up to each user to decide which one is best for his or her personal computing needs. This support includes:

- Advice in choosing an appropriate and affordable configuration
- Ordering the hardware
- Setting up the hardware in the user's office and testing it to make sure it works
- Connecting the hardware to the campus network
- If this is a transition from an older machine, we help with file and software transfers to the new equipment
- Training
- Help Desk support for problem diagnosis and resolution

At this time, about 30 percent of academic and administrative users at the institution use Macintosh computers, about 65 percent use Windows-based machines, and the remaining five percent use a variety of other equipment (Sun workstations, NeXT computers, etc.). Our support costs to provide these services have grown enormously in the last few years, and have reached a point where they are simply no longer sustainable. The expense associated with having IT staff members who know each platform well enough to provide the necessary support and services has outgrown our budget.

Our department is recommending that from now on, the institution support a single hardware platform, and that the platform be based on the Windows/Intel standard. This is not only the best platform in terms of its functionality and durability, but we will also affect the fewest number of users this way. We gave serious thought to the possibility of having the single standard be Macintosh, but we were concerned about potential criticism both from faculty and staff who would be most affected by the limitations that a Mac standard would impose, and from parents who would undoubtedly perceive a disparity between the institutional and business environments.

Furthermore, we have all read about Apple's troubles in the marketplace. Apple Computer's market share for the Macintosh peaked in 1993 at 9.3%. Since that time the company has witnessed a dramatic decline in both market share and net income. The company lost just over $1 billion in its 1997 fiscal year (which ended in September) and Apple's world-wide market share fell to just 2.6% by the end of 1997, from 4.3% a year earlier. Domestically, Apple's market share has fallen to 4.1% in 1997, from 6.7% in 1996. And in the educational market—a traditional Apple stronghold—the market share of the Macintosh dropped by 14 percentage points, to just under 27% last year. Their future is uncertain and fewer and fewer software companies are writing applications for the Macintosh. Of particular note for us is that the new administrative information system that we are currently installing is based on the database management system from Oracle, a highly visible and well-respected company that has discontinued all Macintosh software development efforts. This will have serious implications for Macintosh users who will also be users of the new administrative system.

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Dean's Dilemma

ards for Technology

SGIT listserv by Robert Blystone, a faculty member at Trinity University in Texas, licts; a report done at Colby College, "Reevaluating the Microcomputer Standard"; ck Community College in Virginia.

interoffice
MEMORANDUM

To: Roberta Parker
Dean of the Faculty

From: Sean Davis
Chair, Humanities Division

Subject: Faculty Computers

As you know, many of our faculty have entered computer-based instruction in a very aggressive way and have had good success at it. These faculty have developed many applications, routines, and successful grant proposals to make it all work. As a result of this aggressiveness, a large number of our students have had good exposure (that they may not have gotten otherwise) to computer applications and technology tools that have enhanced their learning.

These faculty feel (as I do) that, as dean of the faculty, you have supported our efforts in this area to the best of your ability, and we all appreciate that. However, we have heard that, as a member of the institution's Information Technology Policy Committee, you are about to participate in a decision that will have far-reaching consequences on the nature of this support. In yesterday's Faculty Senate meeting, we were told that the ITPC is going to decide that from now on, the institution will support only one hardware platform and its associated software. Since it's a safe assumption that if you go ahead with this, the single platform will be Windows-based, this will clearly have the effect of "stranding" the aggressive faculty who have done all of their development work on the Macintosh.

To be fair, we recognize that time and circumstances change. In an effort to curtail expenses, a single computer platform and operating system can possibly reduce costs. Institutions generally do not catalogue and organize their library books with both LC and Dewey numbers; why should they support two computer platforms? On the other hand, in a metaphorical sense, should left-handed faculty be told that they must be right-handed? For much of the time that the faculty has been involved with computers on this campus, the Macintosh was typically the cutting edge platform for innovative educational applications. To some extent, that is true even today.

We are aware, certainly, of Apple's financial troubles. It seems clear that during the early part of this decade Apple lost the strategic focus on higher education that it had during the 1980s. However, several of us have had the opportunity to have conversations with top-level executives at the company, and they reveal that Apple is in the midst of a complete restructuring of the company in an attempt to regain this focus and position the company for future growth. In the past year, Apple Computer embarked on a four-step plan for turning the company around that has already resulted in improvements.

continued on page 6

Report to the Information Technology Policy Committee, continued from page 4:

The principal points in favor of a single Windows standard are:

- Lower support costs
- Creates a common peer support structure among faculty, students, and staff
- Makes document sharing easier
- Improved resource sharing for classroom technology and student clusters
- Simplified network solutions

I would be glad to meet with the committee for further discussion or to answer any questions anyone may have. Thank you very much for your attention to this proposal.

Respectfully submitted,

Emily Dadoor

Executive Director, Information Technology Services

Memo to the Dean of the Faculty, continued from page 5:

Academic freedom is essential to academia. We who teach must be left free to teach the body of knowledge we feel relevant to our courses. Whenever, in the mind of the instructor, that format or technique becomes inappropriate for successfully completing that process or interferes with that process, the instructor has the right, indeed, the duty to object and refuse to use the format or technique. If an instructor is forced to use a technique or format against his or her will, that instructor's academic freedom has been violated. The danger we now face is not the use of technology, but the assumption that technology requires academic conformity. There are those in this business who are confusing technological requirements with academic procedures. In their enthusiasm to make the system work, they are treading on freedom of expression, academic freedom, and even interfering with the body of knowledge the instructor is attempting to express to his or her students.

The principal points against a single standard that would be based on a Windows platform are:

- Higher support costs during the transition period
- Lost productivity of faculty heavily invested in the Macintosh platform
- Limits options for faculty and student experience
- Lost momentum in applying information technology in the curriculum
- Significant retraining costs

In summary, we feel that compelling faculty to switch to Windows when such a move would be costly in terms of lost teaching and research productivity could present unjustifiable morale and logistical issues. Forcing everyone to abandon the Macintosh in favor of a new hardware platform could set back the efforts which have distinguished our college among its peer institutions. Simply put, the Macintosh remains an extremely effective computer for the work of much of the faculty and staff at our college. We strongly urge you to vote against this recommendation.

Thanks for your attention.

Sean

Thank You For Calling...

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Thank you for calling Technical Support. Our electronic sensors indicate that you are about to slump over and die from a massive frustration attack combined with severe dehydration from lack of food and water. Before doing so, please take a moment to place your telephone receiver back in its base and switch off your computer so as not to wear down its internal battery. As a non-living person, you will have no further need of Technical Support and so we regretfully must remove you from our list of registered product users. Remember, we valued your patronage and were happy to serve your needs. Do not hesitate to have your heirs or beneficiaries contact us should any further technical problems arise. ■

Case Study: The Dean's Dilemma...

continued from page 6

Questions to consider about institutional standards for information technology:

Should there be any limit to the number of platforms an institution supports? Should the institution decide on a single platform?

If the ITPC approves the recommendation, should the affected faculty be forced to move to the singularly supported platform, software, etc.? If so, how should the institution help these faculty migrate to the new platform? If not, how will the institution handle the need for support?

Should the institution be up front with possible new students and say "Don't bring that platform to school since we don't support faculty using that platform"?

If you were the Dean, what would you decide?

If you would like to respond to this case, please send e-mail to casestudy@edutech-int.com. We welcome your comments, and the best responses will be published in an upcoming issue of the newsletter. ■

IT Department Staffing Considerations...

continued from page 1

computing, but it's very likely that you won't actively encourage faculty innovation that way.

How many staff you need may also depend on what stage of development your institution has reached in the use of IT, and how quickly it wants to move to the next level.

What kinds of things do you want to do? Obviously, we can't do everything. Dividing IT services into logical categories, such as infrastructure (e.g., hardware operations, systems programming, network services, etc.) and end-user support (e.g., training, help desk, applications programming), makes it easier to see where the needs really are. If everyone is called into action all the time for fighting fires, the longer-range activities will inevitably be neglected.

How much outside services and expertise can you afford and take advantage of? A judicious choice of what services you outsource and which you do inside can help alleviate the pressure on in-house staff. Generally, the kinds of services that can be safely outsourced, without loss of quality, are ones for which a deep understanding of your user community is not absolutely necessary. For example, microcomputer repair needs to be done efficiently and well; the quality of the work does not necessarily depend on knowing the difference between a faculty member and a Registrar.

How skilled is the staff? Sheer numbers don't tell the whole story. How experienced and skillful are your staff? Are they equipped with effective procedures, planning methods, tracking systems, toolsets? Making sure that a well-designed and well-funded training plan is in place for each IT staff member can produce benefits far beyond its costs.

Who is setting (and resetting) priorities? If the IT staff are setting their own priorities, they will never be able to meet expectations. Service level agreements and a priority-setting authority such as a steering committee will remove this impossible burden from the IT staff.

Is your equipment and software base making life harder than it needs to be? Analyzing where your staff's time is going can yield important information. Are certain types of equipment and software taking up more than their share of time? Are you supporting equipment and software that is too old to do the job, or are there too many types of equipment and software?

Are you treating your users as part of the problem or part of the solution? Helping users get the knowledge to do more things themselves and to resolve simple problems on their own is a win-win situation: the users gain more proficiency and control and the IT staff are relieved of the more routine tasks. ■

EDUTECH RESPONDS

Q. Are we the only university left that doesn't have a strategic plan for information technology? It seems we've been doing fine without one, but our new vice president for planning is insisting we create one.

A. *Every campus doesn't need a strategic plan for IT, any more than every campus is ready for a CIO. In order to be ready for a plan, IT has to be strategic on your campus. And IT is not strategic unless it has to do with broad goals: your identity as an institution, your future survival, getting to the next level of excellence. If IT is still a "let's see how much money is left over when the important things are taken care of" item on your campus, then having an IT strategic plan is backwards. You may need, or already have, a "master" plan—an outline of where to spend the money (if you happen to have any left). A strategic plan means setting a direction, a place you want to get to, a place you have to get to for the good of the institution. A strategic plan is also a tradeoff—you give up some flexibility and spontaneity (by making multi-year decisions) for the sake of focus and clarity. You might not want to make that tradeoff, especially in IT; you might want to just roll with the forces from year to year and see what develops. If you don't have a strategic plan yet, it may just be because IT is not a strategic resource for you.*

Q. After months of searching, my IT department has finally found the greatest groupware product. It does everything we want and it can be rolled out in a way that makes supporting it a reasonable project. I would like key administrators, such as the Registrar and the financial aid director, to start using it immediately, especially since our next project is to upgrade everyone to Windows 98 and we're anxious to get started on that. But for some reason, they seem reluctant. What can I do to light a fire under them?

A. *It's not clear from your question whether anyone besides you wants to move to this new product at all. The problem may not be that you have reluctant administrators so much as it is seeing this as an IT project, rather than as a campus project. Has a need for groupware been identified outside the IT department? Have users participated in the search for the right product? Are you taking into account their scheduling needs in addition to your need to install Windows 98? All this makes a big difference in enthusiasm levels.*

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Making the Most of Your Institution's Web Site

While you are reading this, someone is forming an opinion of your institution by browsing your Web site. Web visitors may be partly influenced by the carefully crafted prose and artful graphics supplied by your campus's publications office, but other factors too can powerfully mold the impression they take away with them. Your Web site is a blend of technology, aesthetics, information, and personality. Here is a checklist to help you review whether your Web site sends the message to the outside world that you intend. Is your site fully equipped to function as an extranet, as your public face to the world, as a strategic means of positioning your institution's image?

A college or university Web site should...

Meet the needs of a variety of audiences. If your site is only prepared to deal with prospective students and their parents, you give the impression that your school isn't good at understanding and anticipating the varied needs of its constituents and of the public. You may seem too single-mindedly concerned with attracting more customers. Visitors may get the initial impression that everything on your site is geared to the level of incoming freshmen. It's good to have explicit entry points for prospective students, visitors to the campus, scholars, researchers, alumni, and maybe even the press and others who are looking for information about your institution.

Offer educational content. Does your site have an educational mission? Can I learn something of value there? Are there public exhibits, samples of the faculty's work, scenes from campus stage productions, reports on student projects, insights into why the

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"In light of the very serious problem engendered by higher education costs so far outstripping the rise in family income, it would be less than responsible for any of us not to look for educational strategies that can reduce costs, improve quality and broaden access. Given the examples in our economy of other enterprises that have sought similar goals for their consumers, we might expect that information technology, intelligently applied, could offer the promise to help us achieve some of the same goals for higher education."

Robert Heterick
"The Three Rs"
Educom Review
July/August

NEWSBRIEFS

CALL FOR PARTICIPATION: EDUCATIONAL MULTIMEDIA

The World Conference on Educational Multimedia/Hypermedia and Educational Telecommunications will be held June 19–24, 1999 in Seattle, Washington. This annual conference serves as a multi-disciplinary forum for the discussion and exchange of information on the research, development, and applications on all topics related to multimedia/hypermedia and distance education. The conference organizer, the Association for the Advancement of Computing in Education (AACE) is inviting proposals for papers, panels, roundtables, tutorials, workshops, demonstrations/posters, and SIG discussions. Each proposal will be reviewed by three reviewers for inclusion in the conference program, proceedings books, and CD-ROM proceedings.

The scope of the conference includes topics as they relate to the educational and developmental aspects of multimedia/hypermedia and telecommunications. Submissions are due by October 22. For more information about the conference, see http://www.aace.org/conf/edmedia/call99.html.

SURVEY ABOUT FINDING BALANCE

At this summer's EDUCAUSE-affiliated Seminars in Academic Computing Directors' Seminar <http://www.educause.edu/sac/sac98/sac98.html>, Toby Sitko of the City University of New York Graduate School and Mark Sheehan of Montana State University – Bozeman will facilitate a discussion session for IT administrators on finding the right balance between being a technologist and an administrator—a tension that many feel in their professional lives. To help inform that discussion, Sitko and Sheehan have created a Web-based survey that they would like to have filled out. It is twelve questions and should take just two or three minutes to fill out. The form also provides abundant space for optional comments.

The survey is at http://www.homepage.montana.edu/~sheehan/survey.html. Responses received before August 1 will be analyzed in time for SAC 1998.

CONFERENCE ON TEACHING WITH TECHNOLOGY

"Rethinking Traditions" is the theme of a conference to be held October 15–18, 1998 at Rollins College in Winter Park, Florida (immediately following the Educom98 conference in Orlando). This conference will provide a forum for the discussion of technology tools and techniques used by faculty to rethink traditional teaching methods. Sessions will be led by experienced faculty who have incorporated these techniques into their own courses. The agenda is aimed at teaching faculty and those administrators who support that role, including technologists and academic administrators.

The conference will focus on small group sessions where two to three presenters discuss their work. These multi-track sessions will be followed by breakout sessions where smaller groups can expand on these ideas by discipline or teaching method.

For more information, see http://www.rollins.edu/teachtech.

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Open Letter to the Governor

from more than 800 faculty members at the University of Washington

What follows is the full text of an open letter to Washington Governor Gary Locke and the 2020 Commission on the Future of Higher Education. The letter was signed by more than 800 faculty members at the University of Washington.

Higher education in the state of Washington is at a crossroads. Earlier this year Governor Gary Locke appointed a blue ribbon commission of business and civic leaders to develop plans to meet the state's higher education needs for the next quarter century. Recommendations are due in September. The undersigned members of the faculty at the University of Washington address this letter of concern to these committees as well as to the Governor and legislature.

*****

These are troubling times for the University of Washington and for higher education in Washington state. Our state's future depends upon providing increased access to affordable, high-quality public education. But there are signs that those charged with designing the future of our community colleges and universities are heading in disturbing directions.

Visions of education "without bricks and mortar," of education by CD-ROM and internet, have dominated the initial meetings of the 2020 Commission. In a recent speech at the UW law school, Wallace Loh, ex-officio member of the Commission and Governor Locke's chief advisor on higher education, added to the impression that the planners are bent on replacing face-to-face classroom teaching with what he described as the "brave new world of digital education." Governor Locke himself, in a speech to graduating high school seniors, has anticipated the obsolescence of the University as we know it, saying that in the future there will be no need for "designer label" educations at prestigious institutions.

Hopefully these are merely exploratory remarks. But as faculty members at the University of Washington (an institution we have never regarded as "designer label"), we feel called upon to respond before quixotic ideas harden into disastrous policies.

> *As students know well, education is not a product, but a process, and increased "productivity" means larger classes, fewer resources, less contact with instructors and other students, and the loss of valued teachers and researchers.*

Founded as a vital public center for the exchange of ideas, the University of Washington has survived periodic economic challenges to achieve its standing as an internationally renowned teaching and research institution, on a par with private universities costing more than five times as much. The University's national reputation is crucial not only because UW is the Northwest's principal institution of higher learning, but also because the undergraduate and graduate students who avail themselves of its distinguished faculty and resources are themselves major contributors to our teaching and scholarly community.

Declining rankings reduce our ability to recruit and produce the finest scholars and educators in our state and, indeed, the world. Is it possible that a state that can afford to build world-class sports arenas would turn its back on the world-class university that has served it for so long and with such distinction?

In the last 20 years Seattle has become a major U.S. city, the state of Washington has grown, and its economy and population have expanded rapidly. What has "not" grown proportionately is our investment in public education. Despite our industry and prosperity, Washington state invests fewer dollars per capita in higher education than "any state in the nation but one."

Since the 1980s, the University of Washington has faced successive budget cuts, pay freezes, and hiring freezes. Other states, notably Michigan, Illinois, Wisconsin, and North Carolina, also faced economic hardships. But their elected officials wisely saw their universities as bearing the promise of the future. Those states protected—and continue to protect—these vital assets. Meanwhile, the University of Washington has struggled to maintain its reputation. Its successes thus far testify to the loyalties and capabilities of its faculty, administration, students, and staff.

Disturbing Agendas

Unfortunately Washington's policy makers now seem to be considering

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Making the Most of Your Institution's Web Site...

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curriculum is the way it is? These offerings need not include everything that appears on the campus intranet (which is usually intended to serve current students, and may actually function as an extension of active courses). There are good reasons that limit how much of the actual course material may be made accessible from off campus, and certainly the faculty will want some say in this, but going to the trouble of making at least some real content available from off campus is a tangible way of demonstrating the institution's commitment to learning.

Make it easy to navigate. Unlike corporate or business sites, campus sites can and should reflect a lot of diversity. But there should be a core that is well integrated, a framework into which the diversity fits, and a map and navigation design that let people find out easily what the site contains and how to get to what they want.

Is your information grouped in a way that is easy to grasp? Some standard taxonomies have been developed and have begun to be adopted broadly by campus Web sites. Some of the categories work consistently and are evident on their face. Others can be misleading. "Academics" is clear enough, but avoid poetic categories like "Sights and Sounds." Will I find a faculty member under "Directory" or under "Academics"? Does "Directory" mean a way to search for students by name, or only a list of administrative offices and their telephone numbers?

Remember that for visitors, working their way down or through your tree can be like a game of Twenty Questions. Don't make it seem too quirky or misleading, leading to frustration. Also, don't imitate the worst aspects of the automated telephone answering tree, which forces the caller to make a long series of choices to get to the destination.

Is there a site map, or do I have to laboriously work my way through a hierarchy? Do you make it easy for your visitors to sample your site, or do they have to dive up and down through the links to survey what you offer? There should be a place where you can easily see what is special about the site and unique about the college.

> ***Make sure that the statement your Web site is making is the same one that your physical campus makes, and that both are consistent with your mission and character.***

If I am curious about whether the student newspaper is online, how hard will it be to find out? Can I search for it without knowing the publication's name? This is something like an FAQ for a campus site—a list of Frequently Sought Features.

Conversely, giving a list of things that aren't on the Web site helps me not waste my time searching and getting frustrated. Can I see private Web pages? If not, tell me so, so that I don't have to search around to find out what is missing.

Finally, are the mechanics of navigation clear and easy to use? Are there consistent headers, footers, buttons, and menus that always let you know where you are? (This consistency is one of the benefits that comes from designing the core parts of the site with a site design product rather than a page design product.)

Be as personal as your campus culture allows. Can I find out the name of the president (not just the extension number of his or her office)? How far down the tree of employees can I see people's names and faces? There are pros and cons to this, but campuses that make this investment are revealing their personality type. Make sure that the statement your Web site is making is the same one that your physical campus makes, and that both are consistent with your mission and character.

Provide essential content. Good Web sites have the following features:

- On-line library catalog.
- Content material about courses, syllabi, reading lists.
- Faculty, student, staff directory (Are the phone numbers just given in local extensions? Good place to put e-mail and personal Web URLs, rather than having separate directories).
- Personal pages of faculty, students, and staff.
- Faculty expertise guide.
- Site map, detailed table of contents.
- Full-text search of the site's contents.
- Computer resources information (after all, I am using a computer to get here, so I'm probably interested in this).
- How to make further, specific contact with the campus by e-mail, phone, or US mail.
- Directions to the campus and parking information.

BEST COPY AVAILABLE

- Campus tour, or some physical idea of what the campus is like.
- Campus map. (Can you actually read it? How about when it is printed out? Is the print too small, does it fit on a standard printer page? Hot links on the map may be useful when it is being used on-line, but does the map have enough detail actually printed on it to be useful when it is printed out? You might want to make use of a downloadable, high-resolution form, like Adobe Acrobat.)
- Calendar of events.
- Athletics.
- Campus publications, student newspaper, etc.

Have good design and aesthetic appeal. What does your site most resemble: a stockholders' annual report? A college catalog? An admissions brochure? A test bed for learning HTML? Was a professional designer involved? Does it show? Many schools have demonstrated that you can do an outstanding job in-house. But although graphic design skills are essential and technical skills are required, don't entrust the design to somebody who has only one of these. Consult some of the good resources for principles of Web design on the Internet. Use as high-level tools as possible in implementing the design.

Keep tech in check. Avoid zany, experimental applets, scrolling messages, etc. That is what happens when the design of the site is entrusted to someone for whom technology is an end in itself. Before you know it, you have a site where the emphasis is on the trickiness of the HTML, Java, or animation.

Few designers any more would stoop to using (gasp!) Blink—which is about as maddening as Pong. Blink has now been superseded by scrolling messages in JavaScript and Java buttons that twirl but don't add any content. Instead they take forever to load the Java engine on the user's machine and sometimes crash it just for good measure. Is every bit of techie sizzle on your site justified by its value as content? Put the smart stuff into a compartmentalized area with futuristic, gee-whiz themes. Don't put it at the top of your site where every casual visitor has to wait patiently through it.

What does your institution's Web site most resemble: a stockholders' annual report? A college catalog? An admissions brochure? A test bed for learning HTML?

Be aware of, but not obsessed by, download time. Time your pages when viewed on a modest machine through a dial-up connection. Let users consciously choose whether to download large graphics files or monster text pages. Don't clutter pages up with large numbers of graphics buttons that take forever to fill in. On the other hand, you don't have to look as stripped-down as Yahoo.

Ask for feedback

The people who have viewed your site are valuable consultants. Capture their reactions and insights by providing a button to send mail to the Web designers.

How easy is it to locate your site? If you don't already own the URL that corresponds to the obvious or full form of your institution's name (www.ourbelovedcollege.edu), consider acquiring it. If your school goes by various names, acquire them all and use them to point to your main URL.

By the way, who is actually registered as the owner of your domain name? Make sure it isn't the service bureau that designed your Web site. If your domain name is not www.fullnameofyourinstiution.edu, who owns that? And who owns the "dot.com" version of your domain name? It might be worthwhile to check. (For an interesting example, check out www.baptist.com, which is for sale, and not to be confused with www.baptist.org.)

Are you advertised in the right places? Take a look at the listings provided by the college search services and rating services. Check what happens when you put your institution's name into the major search engines.

Getting the right Web site

One of the keys to having the right kind of Web site for your campus is to involve the right people in designing and maintaining it. Is the purpose and nature of your site managed by an all-campus, strategic (not technical or tactical) committee? Do they introduce themselves somewhere on the site? Neither the computer center, the public relations office, the admissions office, nor the publications office should dominate. Those responsible for setting the tone of your Web site should remember that it needs to serve many purposes and meet the needs of many different kinds of visitors. For some visitors, it will be the most vivid impression they have of your institution. ■

Open Letter to the Governor...

continued from page 3

a number of risky alternatives to the excellent system of public education we already have. Calls for "downsizing," productivity increases, and greater "accountability" carelessly echo corporate fads without taking into account the already downsized nature of the state's universities and colleges.

The University of Washington and its employees are *already* accountable through a range of public channels, and their achievements in providing high-quality education at what is already a uniquely low cost speaks for itself. As students know well, education is not a product, but a process, and increased "productivity" means larger classes, fewer resources, less contact with instructors and other students, and the loss of valued teachers and researchers.

Even riskier, some policy makers appear to have decided that higher education must undergo the rigorous reorganization endured by the health care professions. They would like to convince the public that colleges and universities should be supplanted by a profit-driven, digitalized "knowledge industry," and that teachers should be subject to the same kinds of limitations that healthcare providers have experienced under the rule of HMOs. This prospect is frightening—deeply contrary to the foundations of higher education and its role fostering a free and democratic society.

In addition there is a growing fascination with "digital education." In his April 27 speech Governor Locke made the surprising claim that the research university and its national prestige are "irrelevant" to a coming "Information Age" in which Washingtonians will simply buy their "knowledge" in "bite-sized" chunks through private technology. A few weeks later, Wallace Loh spoke enthusiastically of a "virtual university," where education will be delivered electronically, and anonymously, to students seated at "the kitchen table."

Although "distance learning" presents important opportunities to specific kinds of individuals, including full-time workers seeking continuing education, for most students it imposes serious limitations.

Some would like to convince the public that colleges and universities should be supplanted by a profit-driven, digitalized "knowledge industry," and that teachers should be subject to the same kinds of limitations that healthcare providers have experienced under the rule of HMOs. This prospect is frightening—deeply contrary to the foundations of higher education.

One of the problems with the newest crop of distance-learning institutions is that they are motivated entirely by profit. They admit students into their programs regardless of whether or not they have suitable faculty and resources to confer degrees. The value and efficacy of degrees attained through such unconventional means are entirely unproven. When advanced education is turned into a business, it is the "buyer"—or student—who must beware.

While costly fantasies of this kind present a mouth-watering bonanza to software manufacturers and other corporate sponsors, what they bode for education is nothing short of disastrous.

Public money diverted from "live" education into techno-substitutes will further erode students' access to the low-cost, high-quality education upon which their "real" futures depend. It is absurd to pretend that the reputation or ranking of an institution of higher learning can be ignored. The free market in education-commodities that some foresee, will, in the manner of all markets, result in a range of products with different values and price-tags.

In reality a privileged few will continue to enjoy the personal and economic benefits of face-to-face instruction at schools like Stanford, UC Berkeley, and M.I.T. The less fortunate citizens of our state will make do with downsized and underfunded campuses or settle for inferior and dehumanizing "virtual" alternatives. Chances are that neither will qualify the students of the future to compete for the kind of jobs they want.

Education Is Not Obsolete ——
Far from obsolete, the University of Washington is a vibrant, living community wherein diverse individuals blend an extraordinary range of skills and motivations. Its public spaces are unique: the classroom, the seminar, the student union, the lecture hall, even the corridors.

Education, moreover, is not reducible to the downloading of information, much less to the passive and solitary activity of staring at a computer screen. Education is an intersubjective and social process, involving hands-on activity, spontaneity, and the communal experience of sharing in the learning enterprise.

Education is also not the exclusive province of the young. The thousands of older students demanding access to higher learning are doing so, not only to enhance their careers and keep pace with technology, but also to be stimulated, revitalized, and rejuvenated by the one area in public life that values ideas for their own sake.

As University of Washington faculty we are profoundly committed to meeting these needs and fulfilling the goals of a liberal education. We seek to cultivate the active, independent, critical faculties, ethical capacities, flexible intelligences, and analytical skills without which neither democracy, nor freedom, nor creativity can thrive. *This* kind of teaching involves personal contact and sustained exchange.

Fortunately, it is not too late. Governor Locke and members of the 2020 Commission, we urge you to support learning as a human and social practice, an enrichment of soul and mind, the entitlement of all citizens in a democracy, and not a profit-making commodity to be offered on the cheapest terms to the highest bidder.

The University of Washington is a vital resource to our community, not a factory, not a corporation, and not a software package. Its excellence and integrity are not only assets that we as a community *can* afford to maintain, but also assets that we *cannot* afford to squander.

Sincerely, ■

"Often, technology is adopted for instruction without considering the pedagogical basis for its use or how much it may warp the educational process. This situation reminds me of the story of the man who is persuaded by a smooth salesman to purchase an ill-fitting suit. He convinces the customer to stand crookedly, with one shoulder held high and one arm askew, so the suit will fit. As the customer leaves the store, two men pass him on the sidewalk and notice his bizarre posture and gait. One of the men says to his partner, "Isn't that a tragic sight?" His partner responds, "Yes, but doesn't his suit fit well!" Increasingly, teachers are being asked to wear ill-fitting suits, and we need to assert our right to choose what we wear (and demand a quality product)."

Ed Neal
University of North Carolina at Chapel Hill
Posting to AAHESGIT list
June 30, 1998

In Future Issues

- *Working on the IT department's service orientation*
- *What the president is looking for from information technology*
- *The beleaguered CIO*

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EDUTECH RESPONDS

Q. Our technology environment is very old and rapidly becoming obsolete. We need to identify evaluation criteria to select hardware, an operating system, data base architectures and network configurations. Can you help?

A. *The only criterion for these technology components—and this is widely accepted throughout the information technology industry—is that they must support your applications software. In other words, it should be your decisions about application software that drive all of these other things. Otherwise, you are severely limiting the most important element of your IT environment—the functionality for the users. Suppose, for example, you decided that Windows NT was a better operating system than Unix (for whatever reasons). But if you make this decision in isolation, before you make your applications software decision, then you will be cutting out a great many vendors that have very good applications software. What if one of these vendors you cut out actually has the very best system for filling user needs? The functionality should always be your top consideration—what this technology accomplishes for the users. Then that drives the application software decision—and that decision drives all the other decisions. It's the only sensible way to go.*

Q. We get nothing but grief from the users about our Help Desk. We have tried a million ways to fix it, but can't seem to get it right. Any ideas?

A. *The most common problem with help desks is in the low percentage of first-pass resolutions of trouble reports. In other words, the help desk is at risk if too often callers need to leave a voicemail message or if the help desk call-taker simply passes along problems to others. Over time, the credibility of the help desk grows best on the community's perception that a call results in a problem being resolved during the course of that call. The industry literature on help desks suggests that a first-pass resolution rate of 30% to 40% is the appropriate target. Some ideas: supplement the regular call-taker by having various technical staff take brief shifts; gather and act on information about the calls that come to the desk in order to target training efforts; and be careful about the scope of expertise the desk is expected to cover—create realistic expectations about the exact scope of the services.*

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Providing Information Technology Services to Higher Education

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EDUTECH
REPORT
The Education Technology Newsletter for Faculty and Administrators

Administrative Systems: Popular Myths

Perhaps because we have invested so much in them over the years and they have so often not met our high expectations, or perhaps just because they are, in the end, huge and expensive, we have developed a certain mythology around administrative systems. These myths are not just harmless stories, however; belief in them often leads institutions into making bad, sometimes disastrous, decisions. Separating myth from reality can save enormous amounts of time, effort, and money.

Myth #1: We are unique, therefore any system we buy will require a tremendous amount of re-programming (implied: so we might as well do our own). Reality: It's true; you are unique. Your institution has its own culture, personality, goals, processes, administrative structure, and style. However, that should not lead you to think that a basic administrative software engine will not suit your needs at some level; every college and university has to do certain things, and they are the same things for everyone.

Let's take registering students for classes, for example. A common option for registration these days is through on-line processing. Even at the smallest and most personalized institutions, providing this convenience for the students to avoid having them stand in lines, go through a run-around to get various forms signed, deal with closed classes, handle lots of paper, and so on, has become a requirement, at least as one of a set of options for registering. Evidence suggests that most schools have already implemented this feature in their administrative systems. If you have not, you need to ask yourself whether it is a wise and cost-effective thing

continued on page 4

"I believe that the real problem with integrating technology into the curriculum is not pressure on faculty members to rush headlong into using technology.... Rather, the greater problem is the practice of making these tools available to faculty members with no concomitant effort to help them effectively use the tools to support their curricula when it is appropriate, or use something else when it is not. By focusing on this problem, the pressure to use computers and other instructional technologies will be reduced or will disappear."

David L. Breithaupt
Letter to the Editor
Chronicle of Higher Education
August 7, 1998

NEWSBRIEFS

THE LEAGUE FOR INNOVATION'S IT CONFERENCE

On November 1–4, the League for Innovation in the Community College will host its fourteenth annual international Conference on Information Technology (CIT) at the Fountainbleau Hilton in Miami Beach. This conference has become the largest technology conference in all of higher education, featuring more than 300 forums, 200 roundtables, 12 computer labs, distance learning links, learning center classes, and keynote speakers such as Bill Gates. The conference is a showcase of the use of information technology in teaching and learning, leadership, student services, workforce development, and the development of learning infrastructures for the twenty-first century. Celebrating fourteen years of excellence, CIT features a technologically sophisticated and topically diverse program for all community college educators.

For more information about the conference, see their Website at http://www.leaguetlc.org/conference/confinfo/CIT_98.htm.

ELECTRONIC YELLOW PAGES FOR PERIODICALS

A free, online directory of information on over 150,000 journals and over 8,000 newspapers has just recently become available, courtesy of Bowes & Associates, Inc. Through PubList.com, users can search for publication information by title, subject, ISSN, publisher, or keyword. The service includes publisher's name and address, price, Web address, and how to get copies of articles.

The data in PubList.com comes from authoritative sources like *Ulrich's International Periodicals Directory* and is further enhanced by participating publishers such as MIT Press and Jossey-Bass. In addition, through various document delivery services participating with PubList.com, users can quickly and conveniently locate and purchase both backdated and current articles. PubList is on the Web at http://www.publist.com.

GET FIRED UP AT EDUCOM98

What are the hot trends in information technology in higher education and how do they affect you and your institution? Find out by attending Educom98, October 13–16, at the Orange County Convention Center in Orlando, Florida. Designed for academic computing professionals, policymakers and planners, faculty, administrators, budget directors and development professionals, networking and library professionals, information technology specialists, and corporate representatives, the conference this year will feature seminars, track sessions, corporate presentations, and poster sessions. This year's conference is hosted by the University of Central Florida and its Campus Showcase will highlight projects in which information technology is advancing teaching and learning.

For additional conference information, including a registration form, see the Website at http://www.educause.edu/conference/e98/.index.html.

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Integrating Computing and Library Services

Book Review

Integrating Computing and Library Services: An Administrative Planning and Implementation Guide for Information Resources, by Arnold Hirshon of Lehigh University, is an important document. Who among us is not struggling with organizational issues, or soon will be? And one of the most intriguing ones is whether to combine the library and the IT department and to have a Chief Information Officer (CIO) over it all. According to Hirshon, currently more than 90 four-year institutions of varying sizes have a combined organization, with more than 80 percent of these having integrated their operations just since 1993. A significant trend, to be sure, and one to be watched closely.

There are two troubling aspects to this trend, however. The first is that integrating the two organizations may be motivated by a simple desire to reduce the number of administrative positions on campus. Indeed, one of the "precipitating events" mentioned by Hirshon is the departure of either or both department heads and the institution attempting "to save money by not filling one or both of the positions." That motivation alone is bound to cause problems, no matter how effective the merger or how wonderful the new CIO.

The second aspect has to do with cultural issues. Hirshon identifies the failure to resolve the cultural differences between the two organizations as one of the potential obstacles to success, but it would seem to need to be even stronger than that. The differences are so dramatic and obvious that resolving them in and of itself is one of the most difficult parts of this endeavor and is not easily met with any success at all. It is entirely possible that it is this issue alone that had led to a very high number of combined organizations retaining separate library and computing organizational structures, at least at some level.

One of the most interesting parts of the paper has to do with recruiting and hiring a CIO to oversee the new organization. Hirshon spends a good deal of time on the scope of the position (wide, with both high visibility and high risk) and its reporting relationship (to the president or provost); names (information resources or services seems to be preferred) and titles (none preferred at the moment); the search process; evaluating candidates; advising potential candidates; and negotiating with the finalist.

According to Hirshon, currently more than 90 four-year institutions of varying sizes have a combined organization, with more than 80 percent of these having integrated their operations just since 1993. A significant trend, to be sure, and one to be watched closely.

The longest section of the paper is devoted to "The New Organization: First Steps," offering, among other things, very valuable advice to new CIOs, where "every action and utterance will be imbued with meaning." Great observation.

Throughout the paper, Hirshon emphasizes the need to start with the institution's own objectives, and through those, develop a vision and mission for integrating these two organizations. Then, and only then, should any restructuring occur. This is so sensible, yet so often overlooked as we race toward implementing solutions to problems and opportunities that we have not clearly defined. Do the definition first, says Hirshon, thereby increasing the chances for success.

As stated in the Executive Summary, "This paper does not advocate organizational integration, nor does it present the experience of any one institution. It does provide an objective guide for exploring the causes, desirable conditions, alternatives, and initial steps when an institution wishes to consider merging its computing and libraries." It also offers several appendices, including sample position announcements for the CIO job, a list of colleges and universities that now have combined organizations, and sample organizational charts (from actual schools).

This is the eighteenth in a series of CAUSE Professional Papers. Now that CAUSE has merged with Educom to form the Educause organization, one hopes that these fine publications will continue as they have been, bringing important information to information technology professionals in higher education. An initial complimentary copy was recently sent to each CAUSE member representative as a benefit of membership. If you have not yet seen a copy, contact Educause at (303) 449-4430 or send an e-mail message to orders@educause.edu. ■

Administrative Systems: Popular Myths...

continued from page 1

to do to build something that many, many others have already built. Even if you want to do it differently, even if you require that every faculty member give every student permission to enter his or her class, even if you have some wild and crazy tuition scheme, even if you need to have left-handed students get registration priority over right-handed students, you can still use a basic on-line registration engine to provide information processing support for this function. You don't have to write it from scratch. In fact, it would be a terrible waste of time and money to write it from scratch.

That's just one small example. When you think about all the functions your system needs to provide, from admitting students, giving them grades, billing them, housing them, providing transcripts, and raising money from them once they've graduated, to all the financial and human resource functions that it takes to make the institution run properly, not acquiring as much of the information system support as possible from those who have already worked it all out would be a major mistake.

Another important point is that all the systems today can be highly tailored to "fit" your institution. Once upon a time, it took a lot of programming and customization to make a generic, off-the-shelf system do what it needed to for any one institution. That is no longer true. The good systems today have a wealth of options built into them to tailor the way the system works to meet your needs. Think of the latest version of your favorite word processing package—as you walk around from desk to desk and from office to office, chances are that the same package looks very different. The screen colors are different, the fonts people use are different, the button bars and help mechanisms are different, the templates are different, and on and on—but it's all the same package. People don't think today of writing their own word processing package just because their needs seem to be different from their neighbors'; it is just assumed, correctly, that they can use one of the available packages and tailor it to themselves.

Myth #2: Everything—our data, our processes, everything—is a mess now; a new system will be just what we need to fix it all. Unfortunately, it's not quite this easy. Automating a mess just means you will have an automated mess. It's true that most modern systems have effective data entry techniques for keeping bad data out of the system and many of them have workflow processes built into them for major functions that can help streamline things a lot. But the real work involves institutional policy creation and decision making, that if not done, will result in just as much of a mess as you have now, regardless of how good the system is. Who should update which data elements, for example, is a question that needs an institutional answer which will then drive how the system will work—not the other way around.

Once upon a time, it took a lot of programming and customization to make a generic, off-the-shelf system do what it needed to for any one institution. That is no longer true.

Myth #3: Choosing and installing a new information system is the responsibility of the IT department—they know much more about software than the users do, and certainly much more than the upper administration does. Sure they do, but this is not about software; it's about meeting the goals and objectives of the institution.

An administrative information system serves three main purposes: 1) It helps the institution do its work better, in a more efficient way. It cuts down on paperwork, it cuts down on manual labor, and it has at least the potential to support the re-thinking of all of the institution's business processes. 2) It provides the highest level of student service by making information and support services more readily available. It cuts down on student run-around, aids in advising (program changes, etc.), and makes information more accessible. 3) It provides information about the institution that will help in making decisions, both short-term and long-term. Financial trend analysis, predicting the effect on the budget in five years from implementing a new faculty salary strategy, enrollment patterns to see if there is a need to step up diversity efforts, etc. are all enabled by a good information system. Notice there is nothing in this list about using modern technology. Of course, that's a part of it, but only to support these three big purposes. The users have to own the selection process and they have to own the system.

The benefits of a good system—to the whole institution, not just the

computer center—are strategic, long-term, and potentially transformational. This is not just a software selection, it's about a lot of other things, including change itself. It has to be driven by user needs and institutional needs. And because the benefits are strategic and long-term, the president and cabinet has to be involved. Their involvement, their support, and their attention are all needed. Not just needed, but, in fact, they are critical success factors, and can make the difference between throwing away millions of dollars on a failed system and reaping the enormous benefits of a successful system.

Myth #4: Our school doesn't have much money, therefore we can't afford a packaged system. (Related myth: Our school doesn't have much money, therefore we can't afford a "Cadillac" system.) We have already discussed the "uniqueness" issue and why it ought not to be used to justify writing a system in-house from scratch. The cost issue is just as important. The fact is that, in the long run, *in-house development costs much more than a packaged system*.

How can that be, you say? Looking at a million-dollar-plus price tag for a commercial system, how could you possibly spend more on your own system, using your own programmers? Here's how: The cost of an in-house system = the person-years it will take to do this well (even assuming you have something relatively effective in place at the moment, does it really measure up to commercial standards in terms of functionality, user interface, documentation, integration?) *plus* the risk factor inherent in relying on your ability to attract and retain the quantity and quality of programming staff you need *plus* the cost of waiting until the in-house folks, both users and IT staff, figure out what's needed, how to design it, how to program it, and how to implement it (a very high cost if you assume that every hour that a user spends doing something that technology could be doing better, more accurately, and more quickly is both an expensive and a wasted hour) *plus* the cost of keeping up with regulatory changes (financial aid, accounting, fund raising, etc.) at the same time that you are trying to satisfy unending user needs. This all adds up to a very high number.

Often when an institution opts for a (seemingly) lower-cost system solution, it ends up having to add in the missing features at a later date and/or in a much more expensive way.

In terms of the Cadillacness of any given packaged system, it's true that some systems are priced higher than others, mostly because they offer more in terms of both system functionality and support services to ensure a successful installation. But it's wrong to think of these things as "Cadillac" features; they are not frills, they are not luxuries, they are necessities. Often when a school opts for a (seemingly) lower-cost solution, it ends up having to add in the missing features at a later date and/or in a more expensive way.

A related issue is that the software costs are only part of the story. Regardless of which system you choose, or even if you decide to do it in-house, you still need to provide for training, installation support, sufficiently powerful desktop hardware, a robust and reliable campus network, and so on. Relatively speaking, the software cost is only a small part of the total budget necessary to do this right.

Of course there are real cost differences among systems, and the system you end up choosing should match your institution's financial environment as much as it fits the institution's cultural, functional, and technical environments. But don't confuse short-term costs with total system costs. Software costs are rising (software is, after all, a labor-intensive product), so if it's a case of pay-me-now-or-pay-me-later, you're better off paying now, at relatively lower prices.

Myth #5: We'll be able to reduce staff once the system is in, especially clerical staff in the main administrative offices and programming staff in the IT department. Despite years and years of evidence to the contrary, many higher ed folks still believe this. This may be the ultimate example of wishful thinking by those who are desperate to cut the institution's administrative costs. Ironically, this sentiment is most often expressed in institutions where the staff is already too thin.

Here's what really happens. In most administrative offices, the work changes so that there is usually less data entry, less needing to look things up in paper files, less walking things back and forth between offices, and less duplication of effort. What makes up for all the lesses are the mores: more service to students, much more information

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Response to "The Dean's Dilemma"

***Editor's note**: We had many excellent responses to our case study on institutional standards for technology (June 1998). The best one, reproduced below, was sent to us by Gerard M. (Zak) Kozak, the director of information services at Purdue University North Central.*

The basic issue is that the number and types of platforms an institution supports should be the result of some very definite strategic planning and not determined on an ad hoc basis, and certainly not blindly determined by the administration. Perhaps what is the most telling in the case is the phrase used by the executive director of IT services to describe when the one-platform policy would begin: "from now on." This tells me that it's immediate, and I would think telling 30% of your customer base to take a hike immediately would inflame them beyond reason. This is definitely not good customer service. If the change is absolutely necessary, an "at some point in the future" message is much more likely to achieve the sought-after cooperation.

The single most important issue driving the one-platform strategy is cost. If the cost pressures are really that enormous and the institution really has to do this, then it should make the change as easy as possible. Give the faculty lots of time. Work with them to find and offer alternatives. Put some resources towards the task of transferring files, applications, development work, etc. It can't happen in the short term and you can't put the burden of all this change directly on the faculty.

It would clearly be a hugely unpopular decision; approaching the faculty to slowly begin migration would be much more palatable and might gain their willing support, if it was "sold" correctly. This task requires real leadership to get their willing cooperation—the case tells me that Emily may have really dropped the ball.

But I think it's more reasonable for the IT department—any IT department— to support both platforms. Cost is always a factor in higher education, but there are lots of ways to resolve cost issues. I don't think the institution should decide on a single platform unless there is an overwhelming reason for doing so. The more important issues are educational goals and objectives, and whether we are providing the right kind of environment (tools, resources, support, etc.) to make those goals and objectives happen. The way faculty teach, the devices and tools they use to teach with, and the approaches they use to teach are all issues of effectiveness—much more important than cost, which is just an issue of efficiency.

It would be a much better strategy to try to find funding for providing appropriate support for two platforms than to try to cut costs by choosing just a single platform.

Computing has become a very personal thing; it's closer to us than ever before and there are many more opportunities than ever before to tailor our computing environments to suit our individual styles and work habits. We have encouraged this to happen, and rightly so, at least partly because we can see the corresponding productivity increases. Enforcing a single standard for desktop machines flies in the face of this personalization and is bound to have serious productivity consequences.

Providing support for computers and computer usage is part of the cost of doing business at our colleges and universities today. That's just how it is. It would be a much better strategy to try to find funding for providing appropriate support for two platforms than to try to cut costs by choosing just a single platform.

Finally, creating a single standard forces the institution to choose the "best" one. But there clearly is no such thing. Just in the last couple of months, we have seen stories about different institutions choosing different standards (both of these blurbs are from The Chronicle of Higher Education): "The University of North Carolina at Chapel Hill is recommending to its students that they purchase their computers from IBM, once the school's mandatory-laptop policy goes into effect in 2000." (July 24, 1998) And: "In a letter to 1,100 incoming freshmen, Dartmouth College is recommending that they purchase Apple Computer's new iMac computer to satisfy the school's computer requirement." (July 31, 1998)

What would I do if I were the Dean? I would suggest to Emily that she consider the magnitude of the impact of this proposal and back off. I would also recommend that the committee take on the task of considering how best to provide support for two platforms to the entire university community. ■

Administrative Systems: Popular Myths...

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available with which to create useful reports and queries, and more personal attention to helping other people get what they need from the office. This is, of course, at least one of the important reasons that everyone wanted the new system in the first place.

In the IT department, it is certainly true that a new system requires less programming. But it also requires much more in the way of consulting and service to the users. It is, after all, the institution's programmers who know the users best, certainly much better than the vendor's staff will ever get to know them. So the IT staff needs to take responsibility for making *this* packaged system work for *this* institution's users, including understanding where the system needs to be tailored (different from "customized," as we have already discussed), how best to do that, what additional functions are needed that are not provided by the system, how to make the information kept in the system as accessible to the end users as possible, how to help the users develop good processing procedures with the system to help the institution be even more efficient, and on and on. Far from being unnecessary, the institution's programmers have a vital new role.

Myth #6: Best-of-breed is the right system strategy for us because all of our offices are separate anyway, and this way, we can choose what's best for each without having to compromise. It's true that the best-of-breed approach may be the best one under certain circumstances, but it is important to recognize that its success depends on having lots of in-house resources (and time) to build the necessary integration. That's the one thing that ought not to be sacrificed in the quest for every office to get what they want—the integration of the various system components and information elements. We've come too far in our thinking about systems to regress to the point of believing that we can run an institution efficiently without an integrated system. Of course, most of the commercial packages have this already built in to a very great extent; choosing the best of breed for each office means having to create the integration in-house.

Aside from the why-do-this-yourself-if-it's-already-been-done argument made earlier, it is important to understand that modern systems require much less compromise in functionality than they did in the past. It is the rare system today, for example, that has a terrific admissions module but a financial component that is truly horrible. (Of course, some of the vendors new to the higher education market do not yet have complete systems, but they will before long.) The more interesting compromise issue is the one having to do with consistency; that is, with integrated systems, users have to make decisions about things like data elements and table entries that typically go beyond individual offices, and may involve the entire institution (such the definition of "full-time student"—everyone has to agree on the same definition). These decisions are often difficult to make but necessary irrespective of whether the institution has chosen the best-of-breed approach. ■

"When faculty members ask students to employ information technology as a mode of expression rather than merely as a channel of communication, they increase the educational leverage of the technology. If we ask students to build quantitative models of physical systems, or to construct Web pages exhibiting good design and meaningful substance, ... we capitalize upon the really powerful possibilities of information technology in education."

Robert P. DeSieno
Letter to the Editor
The Chronicle of Higher Education
August 7, 1998

In Future Issues

- *Hot Issues in higher education information technology: 1998-99*
- *The beleaguered CIO*
- *Managing the gap between users' expectations and reality*

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EDUTECH RESPONDS

Q. We're looking for a new administrative system and have just completed the on-campus software demonstrations. Unfortunately, one of the vendors put on a really terrible demo. One of the key people missed his plane and was not there for the whole first morning, they had lots of technical difficulties for the entire time, and even when the technology was working correctly, it was obvious that the vendor had done very little to get to know us well enough to put on more than just a generic demo. To make matters worse, this vendor got his proposal in a week after the due date. We would throw this option out entirely, except that the system itself appears to be a very good one. Any advice?

A. *It's a real mystery as to why vendors let this incredibly important opportunity to make a good impression slip through their fingers. It happens so often and it just defies a good explanation. We think it's important to evaluate the vendor's performance in this regard right along with the quality of the system; after all, the on-going support (even beyond the initial implementation) that you will need from the vendor is one of the most important elements of a successful systems project. If the vendor can't do the demo well or is late with critical deadlines during the courtship, what will the marriage be like?*

Q. We're about to embark on an administrative system selection and we want to start off on the right foot. Is there a set of guidelines you could give us to make sure we do this the right way?

A. *There are four critical success factors that should be present to make this important project successful. 1) Support from the top administration for the effort: involvement, encouragement, a sense of this being a high priority, a declaration that this is something very important for the institution to do with the same level of quality that it does other things. 2) Buy-in, involvement, and ownership of the project by the user community, from the selection of a system all the way through the implementation. 3) Enough resources to make sure the institution is in a position to reap the full range of benefits and protect its investment. 4) A willingness to consider new approaches to information management and business practices to take full advantage of the features a new system will offer.*

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THE EDUTECH REPORT

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Number 6

The Education Technology Newsletter for Faculty and Administrators

Hot Issues 1998-99

by Thomas Warger, Five Colleges

Few of our survey respondents this year launched right into a ready list of hot issues. Many, in fact, began or framed their observations with reflective, almost philosophical thoughts about their agendas. As we do every fall, we interviewed a cross-section of our subscribers to draw them out on what is going to be "hot" in the new academic year. The roster of urgent issues is no smaller this year, but the highs and lows, fears and hype so long associated with IT discussions have settled into a cooler and more considered perspective. Has "maturity" come to a profession where the boys used to brag they'd never grow up, or at least never be caught talking like managers? Today's IT professionals, thoughtful men and women, find the scope of their work wider than anyone ever predicted and give good evidence of it in their topics of concern.

Continuing a trend of several years, the comments of those interviewed were almost impossible to categorize as "big school" versus "small," "public" versus "private," or any of the obvious and facile distinctions. The world of academic IT has clearly developed to a stage where goals and practices are converging on standards about which there is little real debate or controversy.

But there are important issues on which experience and outlooks vary strongly. Outsourcing and process re-engineering brought different responses from those who have fresh experience with them. And, as every year, some of last year's hot issues seem to have flown out the window, sent on their way by lots of money, and maybe some kind of stardust, too.

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"I need you to remember that our role is that of a service organization more than a technical organization. Your technical skills will help you do the work. But the job is really about *service*. Helping people access information, helping them gain technological sophistication, helping resolve problems, helping plan for upgrades is as much about *helping* as it is about technology. People don't care how much you know until they know how much you care."

Gene Spencer
Bucknell University
"An Open Letter to Our Student Employees"
September, 1998

NEWSBRIEFS

EDUCAUSE OFFERS Y2K SITE FOR ADMINISTRATORS

EDUCAUSE, the organization that resulted from the merger of CAUSE and Educom, is offering campus administrators access to information about the Year-2000 issue. The Web site they have set up for this gives links to more than two dozen institutional Y2K Web sites, miscellaneous sites such as *CIO* magazine's Year 2000 Research Center and the U.S. Department of Education's Web site, and a link to the EDUCAUSE Year 2000 Constituent Group discussion list archives.

See www.educause.edu/issues/y2k.html.

CUMREC '99 CALL FOR PAPERS

"Breaking Through 2000 and Beyond" is the theme of the 1999 CUMREC conference, to be held May 9–12, 1999 in San Antonio, Texas. The CUMREC '99 Program Committee is looking for input, thoughts, and examples as to how we can best "break through" to the next century, including dealing with resource demands; defining services and service levels; incorporating the Web into legacy systems; managing distance education; recruiting, retraining, and retaining IT personnel; providing access to information and data; establishing confidentiality guidelines; budgeting for technology; understanding the impact of technology in the classroom; and knowing how legislation affects what we do.

The Program Committee is looking for abstracts of 150-200 words. Individuals or groups of colleagues may submit abstracts, as well as institution/vendor teams.

For more information, see www.cumrec.com/cumrec99/cumrec99.html.

EDUCOM MEDAL AWARD WINNERS NAMED

The Educom Medal Awards Program is a collaborative effort between EDUCAUSE and academic disciplinary societies to honor individuals who are demonstrating that information technology can help improve undergraduate education. Five outstanding education professionals have been named Award Winners of the 1998 Educom Medal. The winners, Diana Eck of **Harvard University**, David Fulker of the **University Corporation for Atmospheric Research**, Richard Larson of the **State University of New York at Stony Brook**, Stephen Ressler of the **United States Military Academy**, and Paul Velleman of **Cornell University**, will be honored at the Educom conference on October 15 in Orlando. Awards are based on addressing a significant pedagogical problem fundamental to the discipline; providing an innovative solution offering clear advantages over other techniques; and demonstrating substantial impact on improved student learning.

The 1998 partner societies are the American Academy of Religion; the American Meteorological Society; the American Society of Civil Engineers; the American Statistical Association; and the Linguistic Society of America.

For more information, see www.educom.edu/web/medal/medalHome.html.

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The Beleaguered Higher Ed CIO

by Barbara Horgan

The term "CIO" denotes Chief Information Officer, the person responsible for coordinating information technology planning, policy, and management for an institution. In some schools, the CIO has a vice-presidential title, reports to the president, meets with Trustees, and serves on the Cabinet. In others, the top information technology person is a director, reporting to a vice president, either academic or administrative, and is much less involved in executive decision making for the institution. Over the past few years, when the CAUSE-sponsored group met, the mood was sometimes somber, variously described as "depressed" or "whining." While these characterizations are exaggerated—most CIOs are energetic and enthusiastic—it's true that the position is an almost impossible challenge. Perhaps the joking translation of CIO as "Career Is Over" really is appropriate.

Evidence of CIO difficulties is seen in the large number of job changes, movement of CIOs to consulting and outsourcing companies, and frequent conversations about early retirement. At a recent conference, one CIO suggested that colleges and universities would save a lot of money on job searches by simply putting all the existing CIOs' names in a hat and drawing one for their institution, repeating the process every few years when the honeymoon was over. It might be as effective a process as the musical chairs now being played.

Required skills

A job description for the position, garnered from the EDUCAUSE Job Postings, gives some indication of why there is cynicism and difficult challenges. The skills required include a combination of politics, public relations, negotiation, technical expertise, futurism, leadership (doing the right things), management (doing things right), and facilitation (helping others do things). Here are a few examples from a recent posting: "must have proven technology leadership and management skills and broad and extensive technical knowledge; ... vision and direction in building consensus and commitment across divergent ... constituencies, ... excellent written and verbal presentation skills." Another job description stresses "strong technical knowledge in computing and communications" along with "strong budget and finance skills"; a "record of working collaboratively with deans, faculty, students, and others in the academic community"; as well as an "ability to build partnerships with external groups." Other advertisements require a good customer service orientation, experience with Total Quality Management, and commitment to participatory management.

Combining political, interpersonal, communication, technical, planning, and operational management skills in one person is no easy feat. Few CIOs seem willing, however, to acknowledge that they can't do it all. Walking on water, after all, is in the job description. If we only worked harder, read more, were more effective with the deans, etc.... And while CIOs send their staff and managers to training and professional development programs, where do CIOs go to keep current?

High expectations

Besides the numerous skills required for the position, there are high expectations of the CIOs accomplishments from a variety of constituencies. Presidents and trustees now pay a tremendous amount of attention to information technology, in part because IT is viewed as facilitating the "transformation" of the academy in response to consumer demands for higher quality, lower cost, and greater access. Presidents, legislators, and trustees look to the CIO for a plan to move the university or college into the twenty-first century, as well as for demonstrated results in achieving a return on the institution's IT investments.

It's not just top management that expects the CIO to work miracles. Faculty are developing Web-based courses and infusing technology into the curriculum. They require support, training, and troubleshooting on a higher level with more sophisticated tools. The support crisis so touted a few years ago has not gone away. Central help desks are still overwhelmed despite the increasing prevalence of distributed support personnel in departments and colleges. In addition, the Year-2000 problem has finally hit home for most campuses. CIOs are vulnerable if they haven't taken a lead in addressing solutions to this dilemma.

Students demand up-to-date labs, wired dorms, mediated classrooms, and on-line access to administrative processes and information. If one institution doesn't have the latest technology, they'll search the Web to find another that does. Proposing technology fees and charging for once-free services, like modem pools—which seem to be reasonable solutions for dealing with escalating demand and flat resources—can

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Barbara Horgan has just accepted a new position as Director of Information Technology at the University of Washington, Tacoma.

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Thinking about instruction. "What are people [faculty] doing differently to justify what we spent?" There is some unease that while we have made good progress in putting computers on desktops and connecting them with networks the beneficiaries have not exactly surged forward to transform education, or even administration. Surely we didn't spend all that money and effort for e-mail and the Web? Or maybe we did. What should be our role in leading the campus community beyond the first and most obvious benefits of the new infrastructure? What can we say or do that will be persuasive? Are there "hard data" to be had? And even if there are, will they be convincing? Part of this issue, to be sure, is the old question of how to reach and understand faculty where they live—what motivates their decisions about using or passing up new technology? But another part of the puzzlement is over whether anyone really knows what to expect of the capabilities we have worked so hard to provide.

In many cases, it seems, the intense focus of the past few years on infrastructure (network, servers, and lots of PCs) has been viewed as time, attention, and resources not devoted to helping faculty advance in their assimilation of technology. There are some indications that faculty patience grew thin during that time and that, at the very least, the quality of conversation between faculty and the IT department degenerated and needs to be revived. There is some false nostalgia for the time before the big push on networking everything and everybody, to the days when instructional technology was the activity of maybe 20% of the faculty, who now find themselves standing in line with the other 80%. In any case, the faculty clientele is no longer the same; the early adopters feel neglected and the newly enfranchised (that is, equipped) wonder what ever happened to that nice person who installed my new Pentium—am I on my own now?

The most frequently asked question coming back from those interviewed (who were either thinking out loud or directing the query to their peers) was, "Does anyone have a good approach to linking up again with faculty and getting back to the business of using technology to improve or transform instruction?" Do we launch new rounds of training workshops? Invite more guest speakers to campus? Do we have to wait for new faculty to arrive and transform their departments? Do we decentralize IT staff to devote more of them more closely to faculty and the academic disciplines? Will administrations repeat the incentives of ten years ago—release time, summer stipends, or extra equipment? Do faculty even want to move quickly or *en masse*? Questions everywhere; few responses in yet.

> ***Today's IT professionals, thoughtful men and women, find the scope of their work wider than anyone ever predicted and give good evidence of it in their topics of concern.***

Getting beyond service response. "We're closing a ton of service calls. We're getting pretty good at it. And, guess what? There's just tons more out there." Even the successful help desk—no mean feat to accomplish—is turning out to be much less of the answer to end-user support than we hoped and promised. One issue is how to get beyond responsiveness. More training? More manuals and documentation? Are we making any headway towards that old goal of end-user self-sufficiency?

Some report good progress in administrative offices where they have cultivated the power users as local resources. And others say they have heard that news and intend to try it, too. But several CIOs are very concerned that their institutions are neglecting the plight of large numbers of clerical staff who are over-matched by the technical demands of the current generation of administrative software. A scenario repeated by several IT heads was that desktop support in the past came from "academic computing," and that those units are not staffed, skilled, or (in some cases) inclined to support the administrative desktop. Who is responsible? What part of the burden needs to be borne by staff outside the IT groups? Is anyone checking to see that "productivity" software is saving anything that justifies the seriously increased support load it has created?

But is the basic model right? Some are asking whether doing well only leads to be expected to do more. They ask whether they can improve services at a rate that will put them ahead of demand. Some services might need to be dropped. Is

Thomas Warger is Assistant Coordinator for Information Systems at Five Colleges, Inc. in Amherst, Massachusetts.

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it still really necessary to run a computer store on campus? Should the institution continue to act as its own ISP?

The year 2000. Oh, yeah. Most respondents said, "We are still busy with it but think we will be OK." Several even extended that assessment to embedded and quasi-computer systems—taking the wider view that has emerged in the past year, once we realized it wasn't just the COBOL stuff. Those who are solving parts of their Y2K problem by installing new administrative computing packages sounded somewhat more pressured, recognizing that system migration is a proven heat source all on its own. But nobody among our subscribers (at least among those with the time or inclination to talk) has just discovered the Year 2000 or characterized it as an explosive issue.

Administrative systems migration. On this topic, there is a division of opinion—some of which is directly traceable to experience. Some institutions and CIOs approaching this work are apprehensive about how to do it right and not become one of the horror stories. Others, including some who have already been through the experience said, "That is now well-understood as a process and should not be a hot issue." The contrast between anxiety and calm on this issue was palpable, even over the phone. Approximately three quarters of those interviewed had either just completed some degree of system migration or were about to embark on it. Only about one quarter did not have it in the near past or near future.

Agreement was almost universal that administrative systems migration seems to have an insatiable appetite for time and talent, effectively browning out most other major IT initiatives for the duration. And, as a corollary, almost everyone reports underestimating the amount of time required and the range of staff whose attention is needed for the project to proceed reasonably.

Web-based services. If there is a band-wagon issue this year, this is probably it. The word is out that students and faculty want to do more administrative business via the Web. The views, from the IT side, vary from "this is a major demand and need" to "The Web will have to take care of itself; I've got bigger problems to handle." Of course, some responded, "We've been doing this for a while and don't consider it an issue at all." This has the earmarks of those issues that assert themselves by acclaim and cannot be argued with—like dormitory networking and graphical Web browsers. The degree of heat in the issue appears to vary directly in proportion to how strong the acclaim seems to be on campus. To be fair, some IT leaders decided themselves that Web-delivery is a good thing and view it with the normal concern that accompanies the roll-out of any new, wide-spread service. There also seems to be lurking in this issue a residue of the view that HTML is not real programming and is stealing attention from "real" computing issues, such as database programming.

Administrative systems migration seems to have an insatiable appetite for time and talent, effectively browning out most other major IT initiatives for the duration.

Staffing. The house is divided on whether this is still a problem. About half say they have made good progress and are feeling better about their levels, recruitment and retention, and effectiveness. The other half report real difficulty in filling not only the perennially hard hires (like networking expertise) but even basic end-user support positions. A few still find their senior administrations hard set against expanding the staff count. The responses range from big-city hiring markets to rural—with no obvious correlations. One interesting report was that outsourcing all project work helped reduce the stress level on regular staff and improved their retention. Interestingly, the same respondent was glad not to have outsourced the administrative systems migration—on the grounds that "ownership" of that project turned out to be a morale boost for the staff. The general view from this CIO was that outsourcing can be used selectively as part of a strategy to protect the workloads and task focus of the permanent staff.

An interesting observation by one of the computing directors interviewed was that newly-added positions seemed to turn over more often than older ones. Staff with a long work history at the institution are loyal or have at least decided to stay. Newer arrivals are less attached and more susceptible to jumping to another job. The effect has been that after winning the

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result in the CIOs being pilloried by the student senate and newsletter.

Juggler, tightrope walker, or both? The position of CIO is a highly visible, highly vulnerable one. When responsibility for IT is concentrated in one individual, any problem, glitch, or unwelcome policy can be traced back to that individual. In a way, the job is analogous to juggling, maintaining a number of different balls (projects, constituencies) in the air at the same time. When one ball is dropped, however, the whole structure can come tumbling down.

CIOs are also like tightrope walkers whom the whole campus is watching. Will they be able to keep a balance between smooth operations and customer service while planning strategically and leading new initiatives? Will the Year-2000 project and new administrative systems mean less attention and resources for instructional and research technology? Everyone is watching and waiting, ready to send that e-mail to the president, deans, and faculty when a particular need is not met or when service is provided inadequately.

The staff crisis

All of these CIO challenges, however, pale beside the difficulties in recruiting and retaining qualified IT staff. During the last few years it has become increasingly difficult to attract and keep staff, with lower salaries in academia competing against higher corporate compensation, stock options, bonuses, and better training. The most optimistic CIO, able to handle academic politics and manage expectations, can feel powerless in the face of this competition. Without qualified, competent staff, it is impossible to complete projects successfully and realize the transformative power of information technology.

So what's a CIO to do?

Given these challenges, no wonder CIOs seem sometimes to be overwhelmed. Is the solution to eliminate the CIO position and its unrealistic expectations? Does it make more sense to have this position in a smaller school, where resources are more manageable and centralized? What are the critical success factors for CIOs, given this environment? Can CIOs survive and even flourish beyond the honeymoon period?

There seems to be no evidence, real or perceived, that CIOs are decreasing in either large or small institutions. Medical schools, law schools, and other colleges within universities are looking for CIO-equivalents to lead the planning process for IT and to coordinate the explosion of technology. So if the position is valuable, even necessary, how can CIOs make it more reasonable?

Support from the top, even if the CIO doesn't report to the president, is crucial to success. If top management is willing to provide adequate resources, rally behind plans and projects, understand the IT job market, and trust the CIO's judgment, a CIO is much better positioned to succeed. A CIO needs to assess support before taking a position, and concentrate on obtaining that support with a new or existing president. Ongoing conversations with the university or college community are also critical to success. The CIO's visibility should be an advantage, rather than just a disadvantage. Engaging the community in conversation includes being out and about listening, formally and informally. It means structuring opportunities for conversation about IT issues and priorities, from focus groups to forums. It means educating campus constituencies about the real costs of IT services and tradeoffs between quality and quantity.

There is no way that CIOs can do the job alone. Partnerships externally and internally are necessary to survival. Partnerships within the institution—discussions about shared responsibility with users—can be initiated during the "conversations" described above. External partnerships include various forms of outsourcing agreements and vendor relationships that also stress shared goals, responsibility, and accountability for outcomes.

And of course the CIO can't function without qualified, competent staff. The hiring/retaining crisis has led to more attention not only to compensating staff adequately but also to nurturing them more fully, from varied rewards and frequent recognition to better and more training in technical and non-technical skills.

It may also be time for CIOs to be nicer to themselves, to take time to smell the roses. The job is never done. So turn off e-mail occasionally and learn a new technical skill, if that's what turned you on to information technology in the first place. Play games with your staff at lunch. Stop working on weekends. Leave the briefcase at the office. Limit the use of beepers and cell phones. Take vacations. Go to conferences and brainstorm with your peers. This time away may actually lead to more effective problem solving and less burnout. What CIOs suggest for their own staff to keep them happy, satisfied, and productive also works for the boss. All work and no play makes for a dull CIO. ■

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battle to add positions, turnover in exactly those positions does not look good. Nor does it help the organization make the progress it expected, as the incumbents are always on the learning curve.

Salary improvements seem to help, but only if combined with other measures to improve the job. Some of those reporting difficulty in hiring said that their candidate pools were small to begin with and shrank even more before salary was mentioned at all.

Process re-engineering. Here is another issue on which opinions and experiences differ among respondents. "There is no way you can re-engineer while going through a migration—there's already too much to do." "If you don't make those changes [process redesign] while changing systems, you'll just have to take everything apart again later." "Postponing the re-engineering probably made the system migration easier, but now we find pockets of difficulty with the new system because we did not change some of our processes." Nobody argued that process redesign was not necessary, but this does appear to be an issue where the best practices are far from established.

And just smoldering.... There were some misgivings about relations between IT and the library profession. Several IT directors felt their library counterparts underestimate the scope and depth of knowledge that goes into IT support. And there was some resentment that the better approval ratings for library end-user support were unfairly attributed to the differences in "cultures," and not adequately to the history of better staffing levels and user self-sufficiency. Others, to be sure, commented that their relations with their library peers were satisfying and productive.

IT management seems still to be getting harder rather than easier. Expectations outpace resources. The users don't appear to be less dependent than a decade ago. IT governance is now intertwined with so many other campus issues.

"We need to question everything we are doing..., how we are thinking." This reflection came from one of the longest-serving IT directors, and a person with an enviable record. The point was not despair, but evidence of the intellectual crisis that occupies more and more of our attention in information technology. Another spoke of a longing to get back to the excitement that drew most of us to this field—exploring how to use marvelous machines to open new possibilities in the jobs and studies we enjoyed. ■

"Many of our customers will see you as 'our organization.' You will be the first to respond to many calls for help. You will perform a great deal of the work seen by our customers, from setting up computers to maintaining labs; from checking printer errors to providing individualized training. For many of our customers, you may be the only [IT department] staff member they will ever meet. It is important [to]... remember that people expect to be treated fairly and consistently. People want to understand what is happening with their particular problem. People want reassurance that things will be ok. And if they aren't, they want to understand why."

Gene Spencer
Bucknell University
"An Open Letter to Our Student Employees"
September, 1998

In Future Issues

- *When doing strategic planning for IT is <u>not</u> a good idea*
- *What, if anything, IT has to do with institutional quality*
- *New system implementation: basic guidelines for success*

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EDUTECH RESPONDS

Q. I would like to make the case that since all the commercial administrative systems these days do pretty much the same things for the users, the best criterion on which to judge them is their technological sophistication. Therefore, since I'm the director of administrative computing and best able to judge this, I should just go out and pick a system for my college. It would certainly save a lot of time this way and I suspect would be a lot less aggravating to the users.

A. *Yikes! You're starting with a faulty premise and concluding with highly distorted result. To begin with, not all of the systems do the same things and even when they do, they do them in quite different ways. Both functionality and look-and-feel are very important criteria for administrative systems and are definitely distinguishing characteristics among the available options today. Then we have the vendor relationship itself to think about: service, support, training, troubleshooting, research and development, documentation, and so on. The available offerings are highly distinguishable today in this area. Obviously, then, there are a lot of things to take into account besides the technology. But there is a larger issue here as well of who at the institution gets to decide this important matter. If you're not looking at this point for a lot of user buy-in through involvement and participation in the process, you're heading for trouble. It may be that you'll save the users a lot of aggravation by making the decision yourself but the cost to the college of excluding the users is much too high.*

Q. Well, okay, but we can keep the numbers of people involved in the selection process small, can't we? Just a few key administrators?

A. *Sorry, no dice with this one either. You have to have faculty and students involved as well. For one thing, you want to forestall the possibility of faculty seeing this as an administrative "goodie." More importantly, because the system will be much more pervasive and visible than it has ever been in the past, users of (and those who will benefit directly by) the system include faculty and students in addition to traditional administrators. Think of faculty advising, entering grades, and getting class lists whenever they want them; think of students accessing their own information. They need to be included in the process.*

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The Education Technology Newsletter for Faculty and Administrators

Invisible Warriors

by Albert L. LeDuc

Coincidentally, when I finished admiring the August issue of *The Edutech Report*, I was reminded of an article I had just read in *The Atlantic Monthly* of July, 1998. That article, written by Robert Kaplan, deals with Kaplan's experiences in comparing Mexico with its neighboring areas in the USA. Perhaps, he muses, the difference between the third world and developing countries is maintenance. By that he means that there are enough resources (or attention) in developed countries to keep things from falling apart from constant deterioration. I think this is a consistently missing understanding with administrative systems as well: There must be money and personnel to keep things going and up-to-date.

In Myth #5 of the *Edutech* article, the idea is broached that it is "wishful thinking" that prompts the myth of reducing "staff once the [administrative] system is in." The essay proposes that what actually happens is that users of the system change their efforts in favor of creating "more useful reports and queries, and more personal attention to helping other people get what they need from the office." The corresponding reaction in the IT area is said to add to the consulting and service load, with programmers inheriting a "vital new role" of service to the institution and technical liaison to the vendor, by, among other things, "understanding where the system needs to be tailored." These are all maintenance tasks and still subject to short shrift. It has ever been thus.

It is apparent that the issue of maintenance is never emphasized enough, in the *Edutech* article or virtually anywhere else. One of my professional goals is to try to further educate people about how superior IT areas in education institutions must pay more

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"The personal computer remains the only common possession that makes smart people feel stupid and requires the constant ministrations of a priesthood of experts. Unless you own a really lousy car, it's likely that your PC is the least dependable device in your home or office. Unlike the telephone, television or fax machine, it requires constant 'upgrades' and behaves erratically, introducing a new hassle or two for every one it supposedly eliminates."

Walter Mossberg
"Personal Technology"
Wall Street Journal
October 8, 1998

NEWSBRIEFS

CALL FOR PAPERS ON THE ROLE OF TECHNOLOGY IN TEACHER EDUCATION

The Teacher Education Special Interest Group of the International Society for Technology in Education is calling for submissions for their Annual Research Award. The Award is for those who are conducting outstanding research on the role of technology in teacher education, pre-service and in-service. Recipients will present the winning study at the 1999 National Educational Computing (NECC) Conference in Atlantic City and the paper will be published in the *Journal of Computing in Teacher Education*. The recipient will also receive a plaque and a cash award. In order to eligible for the 1999 award, papers need to be submitted by December 1, 1998. Selection criteria include the quality of the research; the ability to address the topics of technology and teacher education; and appeal to teacher educators.

Submit papers to: Marianne Handler; National College of Education; National-Louis University; 1000 Capitol Drive; Wheeling, Illinois 60090; (847) 465-0575 Ext. 5155. Questions may be sent to mhan@nlu.nl.ed.

INSTITUTIONAL OPPORTUNITIES FOR ADVANCED NETWORKING

The EDUCAUSE Net@EDU program (http://www.educause.edu/netatedu) has announced a workshop to explore how best to prepare higher education institutions for the opportunities presented by the Internet2 initiative. The target audience for the meeting, "Institutional Opportunities for Advanced Networking," is representatives from institutions "outside the core" of advanced networking: smaller research universities; liberal arts colleges; rural institutions; community colleges; minority-serving institutions; and libraries. Participation of experts from larger institutions and other national leaders in the field is also expected.

The workshop will be held January 7–9 in Austin, Texas at the Renaissance Austin Hotel. For more information, including the agenda and registration, see www.educause.edu/netatedu/contents/events/jan99/.

GUIDE FOR DISTANCE LEARNERS

Prentice Hall and the Western Cooperative for Educational Telecommunications have announced the availability of *The Distance Learner's Guide*, a book that provides basic skills for potential students who are unfamiliar with the concept of distance learning and who face a confusing array of academic and technical options. Dr. George Connick, President Emeritus of the Education Network of Maine, was selected to lead a team of seven distance learning experts from across the country in developing the text. Chapters include information on choosing a distance education provider, the role of the computer, overcoming personal barriers to success, and career planning. An additional feature to this book is a Web site that will assist students in keeping pace with the fast changing world of distance learning. The Web site will be updated with new information to supplement the material in the book.

The book is published by Prentice Hall and is available on www.amazon.com for $20.00.

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Technology and Classroom Design

by Joel A. Cohen and Mark H. Castner, Canisius College

A recent Wall Street Journal article, "Pulling the Plug: Some Firms, Let Down By Costly Computers, Opt to 'De-Engineer,' " has some lessons for classroom design. Classrooms may be getting too complicated, both for the instructors who want to use them, and those that do not. Many technology classrooms are designed in ways that create a hostile environment for instruction. The designers seem to start with incorporating state-of-the-art technology rather than examining needs to create a suitable teaching environment.

Problems with design

An example of the difficulty of design issues: a university we visited recently has created a very attractive auditorium that seats several hundred students. In front of each student position is a duplex outlet and an ethernet jack. During our visit, the auditorium's technology was being demonstrated by an A/V technician from the university. The technician was using a specially designed podium that incorporates a computer, VCR, connections to the local cable TV system, and laser disc player. In this demonstration, the A/V technician was using his own laptop instead of the computer in the podium. He unlocked the podium for access to the projector interface, and he faced a confusing maze of electronic equipment and cables. But he had rehearsed this part; he found the connector to which to connect his laptop. He activated the podium. Impressively, the lights dimmed, the shades of the large windows around the auditorium descended, and a computer image was projected onto a huge screen. The screen was so large that it covered the entire writing board, although the image thrown from the projector covered only about 25 percent of the screen surface. But it would not have mattered if the screen had been offset so the writing board could be used —the room was in nearly total darkness. No one would have been able to see the board anyway. The students could not see the instructor or each other. This is called the "note-taking mood." Perhaps "fall asleep mood" would be more appropriate!

Someone asked the A/V technician (who likely has more training for presentations than the average faculty member) how to adjust the lighting. He said he didn't know. The lighting engineer who designed the room's lighting was present. He explained that the lighting in the room was computer controlled and could be preset in any of several pre-programmed lighting "moods." He then cycled through several of the moods using both the podium-top controls and an array of unlabeled lighting "mood" switches on the wall. None of them produced the correct lighting for student and faculty interaction while the projector was in use.

This institution has fewer than 2,200 students. What could be the instructional use for a room with several hundred fixed seats with ethernet access at each? There are probably few class sections on this campus larger than 25 students. Was the room designed to be a showcase for technology at the expense of good instructional design?

To be fair, there were many things that worked well. Projection images were crisp, the sound systems were excellent, and the building infrastructure will support future technologies. Nevertheless, the room lacked an instructor's perspective. The room was too complicated to use and class interaction was difficult.

Simplicity, design, and engineering

Faculty should be able to do simple things simply, so the primary design goals for technology in a classroom should be simplicity and reliability. Design and use are simple when there are few, if any, options. As options or choices are added, either use of the technology or its design becomes more complex.

By itself, a VCR connected to a television is very easy to operate. A computer connected to a projector is similarly easy. But connect both the VCR and the computer to the same projector and the use of the equipment becomes more complex. Many projectors require the user to select the input source manually. When the VCR is attached to the television, faculty are familiar with the method for adjusting the volume. When the VCR is attached to the projector, faculty must learn to adjust the volume through the projector or deal with a separate sound system. None of this is terribly difficult, but it is one more hurdle during the first week of class when faculty want to be thinking about other things. Now suppose we wish to have two video sources, e.g. a VCR and a laser disc player, feeding the projector. Someone or something has to decide which source will be displayed.

Unfortunately, the complexity increases rapidly as the number of pieces of equipment in the classroom increases. Faculty may choose not to use any technology at all in the classroom. Even if equipment is

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Joel Cohen is the director of Information Technology Services and Mark Castner is the assistant director for User Services at Canisius College.

Invisible Warriors...

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attention to the issue of maintenance. My prime example is the people who put up a Web page and never update it. This is something almost everyone can see every day —good intentions start an instructor's Web page with details concerning class hours and office hours and then bad follow-through allows that page to stay static for the next year or so. We've spent time learning the eye-candy stuff, but we lack the discipline, the time, or the motivation to maintain.

I don't need to tell anyone that educational institutions are under special pressure to avoid "administrative costs," as all constituencies seem to have taken aim at anything that does not place a teacher in front of students. And we have done a simply awful job of informing our publics and students of the necessary costs of all the peripheral activities that occur outside the classroom, the coursework, the library, and the lab: financial aid, student services, and all technical infrastructure work. Tied in with two other allied myths in education: "we can use technology to cut teaching costs" and "there is no need to have support staff for instructors," we find ourselves pretty much backed into a corner to try to defend much of what IT does.

There are many ideas floating around to try to save administrative costs: dropping the maintenance contract for the vendor's software because the institution plans to keep it static; eliminating low-level positions for SAS programmers; refusing to update to new versions of PC software; sticking with old technology out of fear that the institution cannot compete for personnel familiar with newer things, etc. In addition, despite the logic of the *Edutech* article, most institutions clearly do not see the necessity of either "more personal attention" or "understanding where the system needs to be tailored."

There are many people outside of IT who now have been "educated" enough to believe that all software updates are accomplished by typing "C:\update." There are also plenty who have no knowledge concerning nor desire to support esoterica such as systems programming or network analysts. I think unless there is a great deal more awareness among administrators, many institutions will be perfectly content to have a system that worked once but is slowly transforming into a "third-world" system with inadequate support for the institution—and the people who will get blamed for that decline will not be the vendors (and they usually shouldn't be); it will be the CIO and the IT folks.

> ***We have done a simply awful job of informing our publics and students of the necessary costs of all the peripheral activities that occur outside the classroom.***

My crusade goes further: I wish there were some way of honoring the Invisible Midnight Warriors who are the real heroes of the IT revolution—people who deal successfully with the disasters that occur all the time to systems and seldom get any recognition, often because they do their jobs so well that they avert disaster routinely. (And yet, their positions are most vulnerable because of the blissful nonchalance—or ignorance—many of us affect about systems.) I have known instances in which some action was taken in the middle of the night that avoided a data muddle only to find that the administrative reaction was not praise, but was, rather, shock that the institution could be so exposed. It is as if parents were suing the fireman who broke down a door to save their child from the burning house. And beyond this, there are an awful lot of activities within IT that are just necessary grunt work, tedious but critical.

I believe the problem of non-recognition is aggravated by the fact that there is also a natural tendency to promote visible items as opposed to paying attention to invisible ones which may be even more critical. We like to show off the latest system, but we don't want anyone to see the foundation of that system in the form of wearisome or obscure support software.

Let me list some of those unsung and under-publicized areas that healthy IT organizations need to preserve:

Systems programmers. To a great degree, the situation with anyone outside of the technical IT area understanding what operating systems are and how they are distinguished from applications systems is easier now than in the days before the personal computer. Most people seem to understand that there is a difference in complexity and applicability between setting

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parameters to customize Word and fiddling around with the Registry. And sometimes an analogue discussion can help someone in the general public (or an administrator) understand that there is some awfully arcane stuff that systems programmers have to handle. But those of us in IT also need to understand the mirth that our boss displays when she sees a discussion of, say, BIOS upgrades in *PC World*. So maybe we will always face the problem of systems programmers being the ultimate non-understandable geeks.

Data-structure-tuning personnel. Any server needs one. I attended a seminar not ten years ago in which it was authoritatively stated that the proper metric was one person to manage data for each 45 gigabytes of data on-line. At the time my installation had less than a half-person managing more. Was this fodder for getting additional support? Of course. Did it work? Of course not. Would it work today? Har har. What has happened is that we are all buying enough disk space and memory to overcome the shortcomings of inefficiency and duplication. Ordinary people today can buy a 16.8 Gb hard drive for their new PCs. Is it any wonder that pleas for personnel support to tune a performance disk for the mainframe go unheeded? And yet untended disk space gets screwed up and functions like on-line registration get affected adversely.

Network analysts. I think the analogue here is the telephone system, which we finally realize must be rock-solid reliable. Regardless of who maintains the telephone system, it is now understood that that lifeline cannot be cut. The network, ranging in scope from the LAN to the central server to the Internet connection, now occupies the same place of prominence and necessary reliability. There may be a greater awareness of this necessity, but even so, most network tuning gets done on an emergency or very part-time basis.

The Webmaster. It could be that the Webmaster phenomenon is a counter-example to my wish to enumerate neglected functions, since so many people now call themselves Webmasters. The problem is that these people generally have taken on this role by themselves as a hobby. Institutions ought to have some structure that standardizes Web activity with the Webmaster in charge of technical details as a specific job function. (Anything that is done as a hobby has the possibility of being supplanted by something more interesting, like playing with model trains.) Some advanced institutions have done the wise thing already by establishing a committee to work with Web development, with faculty, other technical personnel, and the public information officer joining the designated Webmaster.

Ordinary people today can buy a 16.8 Gb hard drive for their new PCs. Is it any wonder that pleas for personnel support to tune a performance disk for the mainframe go unheeded?

Security expert. *The Chronicle of Higher Education* in its September 11 issue outlines a rather spectacular recent hacker attack at UC Berkeley, one of those periodic articles we have come to expect. The threat of malicious or playful data manipulation will always be with us. The means for dealing with attacks may not always be. This is another area in which public awareness aids the cause. Those of us in education have been a bit ostrich-like about this, especially considering that several attacks have been traced to our own students. I am aware of two serious problems that involved students using university resources for personal (and illegal) business by hacking into servers. In both instances, the breach was discovered by a systems programmer who was curious about why there was so much more data on the server than he had remembered. Of course, the classic book that ought to have struck recognition and fear into every college administrator is Clifford Stoll's *The Cuckoo's Egg: Tracking a Spy Through the Maze of Computer Espionage*. Truly scary stuff, narrated by Stoll as having been found only by chance.

Multimedia experts. More and more, it seems, faculty members will be under pressure to use technology as an adjunct to the teaching/learning process. Most studies indicate that as much as 40 percent of the inability to use technology after specific training relates to lack of time, far and away the greatest single deterrent. Faculty, understandably, want to teach. Although we all hold hope for simpler and more intuitive software, we had better not hold our breath, as all trends have been toward more feature-rich and hence more complicated software to use, especially in the multimedia area. So we really should have multimedia experts taking on that load. I think it

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Technology and Classroom Design...

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available in the room, faculty do not use it all the time. But whether they use technology or not, technology should not get in the way of instruction.

Recommendations

General. A classroom with technology is still a classroom. To assure student comfort and an effective teaching environment, start with the basics for classrooms. Learning space should follow the preferences of students and faculty rather than the preferences of technologists. Everything in the room must flow from good instructional design and practice. Take into account the different teaching styles of faculty on your campus; to find out what your faculty and students want in a teaching environment, ask. Visit other institutions to see how they have addressed classroom design for their culture.

To the extent possible, keep the classroom flexible. The classroom is going to be around much longer than the current technology that is installed. Telecommunications infrastructure should include current and reasonable future needs. Technology and accompanying infrastructure should not get in the way of instruction when it is not being used. To the extent possible, standardize instructional technology rooms on a few models.

Technology rooms have operating costs, the most important of which is personnel; a telephone hotline for support should be available in the classroom.

Equipment control. Keep the operation of the equipment simple. Instructions should be no more complicated than will fit on a sign posted in the classroom. Although it may not be intuitive, computerized control, poorly implemented, will make the classroom *more* complicated. Computerized control is expensive and may not be necessary.

Lighting. The goal is to keep the screen dark, the instructor light, the writing board light, and the students light. With good engineering, it is possible to come much closer to that goal than the state of most technology classrooms suggests. An absolute must is front-to-back, rather than side-to-side, light zoning. Parabolic fixtures over the class area, lighting over the writing board that does not disperse to the classroom, and appropriate spotlights on the instructor and equipment are a good starting point for a lighting design. Design your lighting to reduce glare on the likely location of TV and computer monitors. To control ambient room lighting, windows must be able to be sufficiently darkened with opaque shades or draperies.

> ***Technology classrooms are still classrooms, and they need to be designed to maximize student and faculty interaction.***

Projection and video. The required width of the projection screen is calculated by dividing the distance between the furthest student and the screen by four. Matte screens support viewing angles up to 90 degrees, but yield the dimmest images. Lenticular and glass-beaded screens result in brighter images, but viewing angles only up to 60 degrees. The required diagonal size of a TV monitor is one inch for each foot of distance between the furthest student and the monitor. A writing board should be available and visible when video is used.

Acoustics. Projector fans, HVAC noise, and classroom building materials make for a challenging acoustical environment. Be aware of this when selecting equipment and collaborating on building design. There should be no noise "spillover" to adjacent classrooms, especially in film-screening rooms in which the volume is likely to match that of a movie theater. Acoustics are particularly important in rooms for distance education. Voice amplification may be necessary in classrooms that seat over 75.

Laptops. Laptops should be easy to connect to a room's projection system. There should be no need to open locked cabinets to access the network or room projector. Laptops simplify instructional delivery for instructors; faculty develop presentations on the computer that will be used for the presentation and can customize that computer however they choose. Power should be present wherever laptop use is anticipated.

Summary

Good classroom design comes from good starting principles. Any classroom should "work" from the perspective of both students and faculty. It is possible to build technology classrooms that work both when the technology is used and when it is not. Technology classrooms are still classrooms, and they need to be designed to maximize student and faculty interaction. Keep soliciting feedback from students and faculty. Use this feedback to update past efforts and to improve the design of future classrooms. ■

Invisible Warriors...

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is futile to try to transform the faculty role into one of unmitigated delight with having to work with mysterious technology. (The unmitigated delight is going to come once we recognize that the people to grasp technology will be students, in the learning process, a modality we have yet to exploit fully.)

Then there is a whole category of functions that are invisible only because they are thought to be outside the province of IT.

1) *A business manager*. Large organizations have this kind of position and small ones probably have a designated account clerk and buyer. There is amazing cost leverage here. I know of several instances in which an informed business manager has saved the institution as much as $10,000 with less than a day's work by tracking down faulty invoices. Yes, businesses are not always the paragons of efficiency we in education might believe.

2) *A legal expert*. Large organizations probably already have enough technology-related law activity to keep a person busy full-time. There are authorities who now believe that the greatest cost of the Y2K problem will be lawsuits arising from those problems, not the problems themselves. Could be.

3) *A human-resources expert*. Once again, large organizations have established HR areas within IT simply because there is so much business there. Some institutions have realized that the positive leverage of organizational development is such that HR has to be somehow intimately involved in the IT group. And then hiring and firing has always been a predicament in IT, partly because so little attention is paid to it. Furthermore, supervisory training is usually abysmal in IT. And yet, even as unscientific a poll as that conducted by Scott Adams at his *Dilbert* Web site concludes that the most negative thing about work is The Boss. This is correctable, but not by weak and amateurish efforts to get supervisors to read books or watch videos.

I have a great deal of sympathy for unrecognized superstars in small and medium schools who are wearing some or all of these hats simultaneously. Many times they lurch from one crisis to the next, trying to keep one step ahead of the conflagration. They will try to prioritize things themselves and often bear the brunt of blame when the system becomes unavailable. The best are implicitly trusted to do the right thing, but even the best usually wish there was more understanding of the vulnerability that the institution has. In this case, quiet competence may be its own reward, but I surely wish that institutions would think through the need for support of those Invisible Midnight Warriors. ■

"When I prowl the halls of my workplace, I often see people on their hands and knees beside their computer. No, not praying, but installing new things, rebooting, checking the cable connections, or just muttering under their breath. The personal computer isn't very personal. It's big and clumsy, sitting there on the desk, occupying space, requiring more and more time to maintain, requiring lots of help from one's family, friends, and neighbors. Rather than being personal, friendly, and supportive, it is massive, impersonal, abrupt, and rude."

Donald Norman
University of California at San Diego
The Invisible Computer: Why Good Products Can Fail, the Personal Computer Is So Complex, and Information Appliances Are the Solution

In Future Issues

- *Confronting the "non-conformists" in the IT department*
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EDUTECH RESPONDS

Q. We have just completed a three-year strategic plan for information technology, but I'm already beginning to worry that it will be out-of-date soon. How do we make sure we're keeping the plan fresh and useful?

A. *Planning for information technology is a more-or-less continuous process. As soon as a plan is complete and in writing, it changes—both the technology and the needs of end users force this to happen. You have started on an important process by creating a plan to begin with. Now the challenge will be to keep this momentum going. Your major planning cycle is three years; that means that you will need to go through a comprehensive process on that cycle to create a new strategic plan. But in the meantime, you should go through a process that is less comprehensive, but just as serious and formal, once a year. You should revisit the plan to make sure the remaining efforts are still in line with the original intentions and take the opportunity to identify new initiatives and / or to put the existing ones into a new priority order. This need not be as extensive as the effort that takes place every three years, but it shouldn't be perfunctory either.*

Q. For the past few years our institution has funded access to computing power for those who could demonstrate that they were most in need of it. This program has helped computers to proliferate, but at the same time, the institution's expectations for the members of its community have changed (for example, everyone is now expected to use electronic mail). We are thinking now about establishing a "baseline" configuration of hardware and software that everyone at the institution would get. Is this sensible?

A. *Yes, absolutely. A necessary condition of genuine competency with information technology is convenient access. Institutional funding for personal computers for all members of the community is the best way to empower each individual to be as productive as possible. It will also create an environment in which it is clear that information access and technology tools are valued and expected to be used, regardless of one's position, field of interest, or endeavor. Baseline technology should not have to be proposed or justified by anyone at the institution; it should be supplied with the expectation that technology today is, or should be, part of everyone's basic tool set.*

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Is Merging IT With the Library a Good Idea?

Let's put the term "information technology (IT)" aside for the moment and talk instead about "computing" and the "library." Neither of these organizations is what it used to be, and while both no doubt will have a lot of work to do together in the future, those nametags still identify the players we have in mind. The eventual meaning of "IT" is not yet known, much less agreed. Computers and networks are a big part of it, but we don't really know yet the size and nature of the part that consists of what we might call "knowledge organization and stewardship."

As an organizational issue, the library/computing pairing is in some ways the high-visibility question that academic/administrative computing was a decade ago. If this analogy is instructive, then these organizations will be different in the future from what we know now, though perhaps not for the reasons that seem most obvious at the moment. There are good reasons to ask whether computing and the library should be merged, but we need to get behind the official and public positions on this issue to understand some important themes that are not often brought into open discussion. The gap between official reasons and important considerations kept out of the public discussion prevents us from understanding this issue fully. Because the question is open at so many institutions a fuller and more candid discussion is needed.

Major considerations

There are several points that underlie most of the outward discussion. First, libraries are clearly using more electronic technologies, and adding them at a pace that is faster than anyone planned. As a consequence, they find themselves no longer incidental users of

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"Those of us with a stake in black studies, as well as in other areas ..., should be especially concerned about technology that takes us out of the classroom.... Instead of letting technology drive teaching, we should think about the ways in which technology could supplement —not substitute for—what we do in the classroom. Scholars and administrators should proceed with caution, carefully thinking through the ... implications of dispensing with traditional classroom contact between students and teachers. More is at stake than superficial technological advancement."

Ingrid Banks
"Reliance on Technology Threatens the Essence of Teaching"
Chronicle of Higher Education
October 16, 1998

NEWSBRIEFS

EDUCAUSE FELLOWSHIPS

The mission of EDUCAUSE is to enable the transformational changes occurring in higher education through access to, use, and management of information resources and technologies in teaching, learning, research, and institutional management. The EDUCAUSE Fellowship Program is an endowment that has been established to lower the financial obstacles facing information resources professionals at economically disadvantaged institutions who wish to, but otherwise cannot, attend EDUCAUSE events. Such events include topical conferences in various international venues, the association's annual conference, and the various programs of the EDUCAUSE Institute. Funds provided by EDUCAUSE corporate members defray travel expenses, while EDUCAUSE funds are available to reduce or even eliminate event registration costs.

The deadline for applications is January 5, 1999. For more information, see http://www.educause.edu/awards/awards.html.

INSTITUTE AT WAKE FOREST UNIVERSITY

The TLT Group and Wake Forest University will co-host a Catalyst Institute for the second year at Wake Forest University. The workshop, focusing on the creation of strategic plans for advancing teaching effectiveness through the use of technology, will be held in Winston-Salem, North Carolina on January 21–23, 1999. Steve Gilbert and Steve Ehrmann of the TLT Group plus other experienced workshop leaders from around the nation will join Wake Forest leadership to conduct intensive planning sessions for teams of six-to-twelve individuals from up to 25 colleges. Typical teams include key faculty and staff such as Information Services and Library Directors, early adopter faculty, members of faculty technology committees, and strategic planning committees. Many institutional deans, vice presidents, and presidents attend. Last year several college trustees joined their institutional teams.

The registration deadline is January 10, 1999. To register, contact iccel@wfu.edu. For more information regarding the program, agenda, and workshop leaders, contact Kristy Church at Church@tltgroup.org or visit the Web site at http://www.tltgroup.org.

DEMAND FOR YEAR-2000 DISCLOSURE AT PUBLIC COLLEGES

A requirement that goes into effect this month for most public colleges to begin disclosing their Year-2000 problems and how they plan to address them has been issued in a technical bulletin from the Governmental Accounting Standards Board (GASB). Disclosures must include amounts of money spent fixing Year-2000 problems, how the college might be affected if the problems are not fixed, and a description of what has been done so far. The requirement applies to any public college or university that reports financial information to a city or state.

Information about the GASB bulletin, including a link to the bulletin itself, is available at http://www.rutgers.edu/Accounting/raw/gasb/tbpage.html.

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Colleges Struggle With IT Planning

Latest Survey Results from the Campus Computing Project

Roughly two decades after the first microcomputers arrived on college campuses, American colleges and universities continue to struggle with computer and information technology (IT) planning. Just under half of US colleges have a strategic plan for information technology, more than 60 percent do not have an IT financial plan, and only about two-fifths have an IT curriculum plan. Moreover, two-fifths have an instructional plan for using the Internet, less than a third have a plan for using the Internet in their distance learning initiatives, and only a fourth have a campus policy regarding intellectual property for Web-based instructional resources developed by faculty.

"Without question, technology has become a pervasive part of the campus environment and college experience," observes Kenneth C. Green, director of the Campus Computing Project and a visiting scholar at the Center for Educational Studies of the Claremont Graduate University in Claremont, California. "Students of all ages and across all fields come to campus expecting to learn about and also to learn with technology. Yet across all sectors of the higher education landscape, institutions continue to struggle with key aspects of IT planning and infrastructure: developing a strategic and a financial plan for IT, planning curriculum integration, and providing adequate user support."

Green notes that these planning challenges are reflected in the issues identified as the top IT challenges confronting colleges and universities. Again this year, more than a third of the survey respondents (33.3 percent) identified "assisting faculty integrate technology into instruction" as the most important IT issue confronting their institution, followed by "providing adequate user support" (26.5 percent); IT financial planning ranked third at 17.1 percent. Only 4.3 percent of the respondents identified Y2K problems as the most important IT challenge confronting their campus.

"Campuses are doing more with technology, and they are doing it better than in the past. But the real challenge at most institutions is to improve resources and services given both rising expectations and exploding demand," says Green.

Not surprisingly, the 1998 survey shows that more college courses are using more technology. The percentage of classes using e-mail jumped to 44.4 percent this year, up from 32.8 percent in 1997, 25.0 percent in 1996 and just 8.0 percent in 1994. One-third (33.1 percent) of all classes are tapping into Internet resources as part of the syllabus, compared to one-fourth (24.8 percent) last year and just 15.3 percent in 1996. And almost one-fourth (22.5 percent) of all college courses are using "Web pages for class materials and resources," compared to just 8.4 percent in 1996 and 4.0 percent in 1994.

Despite assumptions that students may be more "wired" than their professors, a new item on the 1998 survey suggests that more faculty get a daily dose of the Internet. Survey respondents, typically, the chief information officer (CIO) or chief technology officer (CTO) at the participating campuses, estimate that 45.1 percent of their undergraduates use the Internet at least once a day, compared to 51.6 percent of their faculty. Both the student and faculty numbers are highest in research universities (over 50 percent for both groups). In contrast, less than a third (29.1 percent) of the students and two-fifths (40.1 percent) of the faculty in community colleges have daily contact with the Internet and Web.

Green observes that the Internet data are interesting for several reasons. First, these numbers document the widespread assumption that large numbers of both students and faculty routinely use the Internet. Second, unlike other "knowledge workers," whose work activities are more linked to an individual desk or office, students and faculty are a more mobile population in that they spend a large part of their working day in multiple locations (home, dorm, office, classroom, etc.). On many campuses, students and faculty often log on to the Internet from multiple locations, such as libraries, campus offices, public-access labs, and computer-based classrooms. In this context the data suggest that, compared to other "wired workers," students and faculty appear to make an extra effort to get their "daily dose" of the Internet and Web.

More colleges impose IT fees — The 1998 data reveal that more campuses are using student fees to help cover rising IT costs. Almost half (45.8 percent) of the institutions participating in the survey report a mandatory student IT fee, up from 38.5 percent in 1997 and 28.3 percent in 1995. Although the

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This article is based on a news release prepared by Kenneth C. Green, director of the Campus Computing Survey.

Is Merging IT With the Library a Good Idea?...

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computing and networking. Now those technologies are essential to core library activities and, like any enterprise that finds itself depending on a new resource, libraries are asking whether they have adequate control over the supply of that resource. To some extent, there is an interest in a kind of "vertical integration" in which libraries buying into the control of computing and networking protects their stake in those services.

Librarians, too, are changing. The degree to which librarians have worked with complex systems is little appreciated outside the profession. But it is not a large step from comfort with those systems to comfort with systems implemented in new technologies. As a result, those librarians who take the step begin asking some hard (and reasonably well informed) questions about the management of computing and networking and about their future directions.

Librarians' experience with the organization and preservation of information is a value only a few in the computer science, engineering, and computer/network services professions have yet realized. Only very recently has concern over continuity and future accessibility for electronic information media become widely thought about.

The boundaries between libraries and computing support organizations are blurring for some activities. In the past, a Sociology professor went to the government-documents librarian for the paper copy of the U.S. census and to the computer center for electronic data on tapes. Now the trend is that the library receives more documents in electronic form but is unsure how far its role goes in assisting faculty in data extraction or in teaching their students how to process that information for statistical analysis.

As a counter-example, the Web was first treated as a "computing" phenomenon, but now almost no one thinks the computing staff has a role in helping students and faculty to evaluate and manage information from that source. We are unlikely to see librarians "catalog the Internet" (as some have actually suggested!), but they are certainly producing useful indexes and source guides. And, we are unlikely to see librarians add database programming to their list of services —a task computing support organizations do only reluctantly for faculty as it is.

> ***Almost everywhere a vacancy occurs in a library or computing directorship, the merger question is entertained. Where one of the organizations (more often computing) is thought to be in crisis the question grows sharper.***

In addition, there is, to be candid, a crisis in confidence on campus regarding the leaders of computing/networking support services. Senior administrators have seen very high costs, failed estimates and analyses, and lags in project timelines and service standards. While library costs have gone up significantly in recent years, that domain of activity is generally more settled, predictable, and—in a word—manageable. Given all this, those administrators might be persuaded that merging the library and computing organizations will bring technology inside the library and sound management to computing. Students and faculty know and appreciate the service standards at the library and almost all have their personal anecdotes about the network jack that did not get fixed for a month or the help-desk staff member who said, "Sorry, I'm not a Mac person."

The future also is very much on our minds at the moment. Most agree that the convergence of issues comprised by the term "information technology" implies less clear distinction between what we ask libraries and computing/networking organizations to do. Academic institutions are still notoriously resistant to change, but we know that and do not want to be hampered by clinging too long to departmental views of the world in the middle of so much change.

The present time

Where, then, do things stand now? There are a few (but only a few) colleges and universities that have created a truly merged and new organization—one in which staff roles have changed across the board and which offers the campus demonstrably different (and better) services. Almost everywhere there is more organizational and project-directed cooperation between computing and libraries. The tone of these relationships ranges widely from genuine comity to uneasy alliance or even jealous mistrust. There has also been a moderate number of reorganizations in which the two departments report to one director, with perhaps some staff job re-definitions but little outward change.

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We should also not overlook significant changes short of merger: libraries with internal IT departments, projects jointly staffed and creating valuable new experience and trust, staff who go to technical training together and become colleagues, and human network peers without regard to organizational charts.

Almost everywhere a vacancy occurs in a library or computing directorship, the merger question is entertained. Where one of the organizations (more often computing) is thought to be in crisis the question grows sharper. For those thinking about a change there are good and bad reasons to bring libraries and computing together.

The good reasons

The institution has its eyes on the future and believes that it needs to make changes now to be better prepared even though the shape of that future is not yet clear. Tomorrow's faculty and students will have little interest in the history and traditions of campus organizations and boundaries around services they want.

Computing and library support staff know different things about the same students and faculty. A merger based on a recognition that pooling this knowledge will result in services backed by better sensitivity to the true state of the clientele is a merger built with strength and vision.

The campus is ready for this change. A good idea also has to come at the right time and in the right place. Trust and confidence create a better climate for the hard work of innovation. If the prevailing attitude is supportive and patient, there will be a period of grace in which to get the new organization's kinks worked out. If the support is deep and permanent, the new plan is more likely to survive leadership turnover.

The leadership to make successful change is in place (and not just at the top of the organizations). In almost any situation, the head of the merged organization will need to be a strong persuader. Trust in the new vision is just as important at all levels of leadership in the new organization because the staff inside it will be the hardest constituency to win over.

> ***The cultures of the two organizations could hardly be more different and must have the time and circumstances to become more compatible on any particular campus before a good merger is possible.***

The bad reasons

The institution is desperate to solve a problem with deep roots by making a dramatic change. If computing services are poorly led or chronically underfunded, merging them with the library fails to address the real problems. This is reactive leadership and is probably a cave-in to other reasons for the merger.

Too much weight is given to the dubious proposition that libraries are inherently more inclined to give good service and computing organizations poor service. The libraries undoubtedly win the comparison, it is true, but the reasons might be due less to differences in attitude than to staffing levels and users' capabilities and expectations.

The change is hatched behind closed doors and looks more like an administrative shuffle or political move than an idea. In this scenario the fault-finders have an open season for sniping and any recalcitrant members of the new organization's staff will find ready encouragement from the clientele. In some cases, there are more pressing issues attracting attention on campus. In still others, the campus culture just does not take well to change.

The merger is too much like a "shotgun wedding." In this model, one organization does not want to be there and feels it is being taken over and subsumed. The cultures of the library community and the computing equivalent could hardly be more different and must have the time and circumstances to become more compatible on any particular campus before a good merger is possible.

Important questions

There are some important questions to ask when considering a library/computing merger or when evaluating one that has already taken place.

Are there publicly articulated goals for the merger? Are those criteria being met? It is all too easy to fall into the trap of thinking that good ideas need no metrics and that as long as there are no obvious signs of failure there must be a success.

How do the faculty and students feel? Do they see differences that

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Colleges Struggle With IT Planning...

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number of public institutions imposing mandatory IT fees is rising, the average annual fee has remained fairly stable among public four-year colleges and universities at $120, roughly the same as in 1997. In community colleges, however, the annual IT fee rose by one-third, from $55 to $72. Among private institutions, the percentage of research universities imposing an IT fee rose to 36.4 percent, compared to 15.0 percent last year; moreover, the average IT fee at private research universities more than doubled, rising from $112 in 1997 to $233. Similarly, more private four-year colleges now impose an IT fee (37.4 percent in 1998, up from 31.7 percent in 1997), and the average IT fee increased by about third, rising to $146 in 1998, up from $112 last year.

"Rising IT fees reflect the continuing financial challenges colleges confront in attempting to provide more and better IT services for students and faculty," says Green. "Yet campus officials must avoid the temptation to use student fees to supplant, rather than supplement, the institutional investment in IT." He notes that this is a particularly pressing issue for public institutions, as state officials may be tempted to have students cover a larger share of rising institutional IT costs: "Computer networks, user support services, software and content licenses, computer labs and instructional classrooms are key components of the campus technology infrastructure and need more than just student fees to be viable and reliable," says Green.

Year-2000 issues

As a group, the survey respondents do not appear very concerned about the potential impact of the Year-2000 bug at their campuses. The vast majority, 70.0 percent, "disagree" or "strongly disagree" that "Y2K problems pose a major problem for my institution."

Green observes that campus officials may view the Y2K issue as a supplier responsibility, rather than a campus problem: "Many campuses now buy, rather than build, most of their core academic and administrative software. As a result, many are no doubt expecting their software suppliers to provide solutions to potential Y2K problems."

Intellectual property policies

The growing role of the Web as a vehicle for scholarly dissemination and as a repository for instructional resources raises important questions about who owns intellectual property: a course syllabus, working paper, or some instructional software posted on a college or university Web site. Yet the 1998 survey reveals that most campuses have not developed policies to address intellectual property issues.

Roughly a third of research universities report some type of policy addressing faculty-developed intellectual property on the campus Web site (38.6 percent for public universities; 30.4 percent for private universities). In contrast, just over a fourth (27.5 percent) of public four-year colleges and community colleges (27.3 percent) have institutional policies about Web-based intellectual property, while less than a sixth (14.1 percent) of four-year private colleges have addressed this issue.

Green notes that given some great expectations in parts of the campus and the corporate community for the role of the Web as a cash machine for on-line instruction, "it is easy to anticipate tense discussions between faculty and administrators about institutional copyright policies affecting a wide range of materials and resources that faculty routinely develop as part of their scholarly and instructional activities. To date, many faculty and researchers have been willing to post these materials on Web sites hosted by their home institutions. That may change quickly, however, if colleges and universities claim copyright based on the fact that content was first posted on a campus site."

Web-based services

Not surprisingly, colleges and universities are using the Web to offer an expanding range of information and support services. Across all sectors of higher education, a growing number of institutions are using the Web to provide access to admissions forms, financial aid applications, course catalogs, and related materials. In some areas, the gains have been striking: alumni services is up by a fifth (from 46.0 to 55.6 percent), student transcripts almost doubled (from 9.8 percent of the 1997 respondents to 17.8 percent this year), while course reserves more than doubled from 8.6 percent in 1997 to 19.9 percent in 1998. Yet few campuses, just 5 percent, are doing e-commerce via the Web: "Given that students are buying clothing, music, and even books online, it is surprising that more colleges are not prepared for e-commerce. For campuses, the long-term e-commerce issue is course materials and other content.

The annual Campus Computing Survey, now in its ninth year, is based on data provided by officials at 571 two- and four-year colleges and universities across the US. Campuses completed the survey during the summer of 1998. For more information, see the Web at http://www.campuscomputing.net.

Is Merging IT With the Library a Good Idea?...

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they find valuable? Are they confused or indifferent about the whole thing? Are the changes beneficial to them or invisible?

What sort of process produced the change? Was it open and inclusive or was it executive and invisible? It stands to reason that services so essential to the institution should get the best kind and degree of deliberation, in as open an environment as possible.

Did the merger fit into a wider context of reform and realignment of practices? Were media services included? Were branch libraries and computing support staff outside the central organizations just left behind?

A good idea?

Part of the conclusion on whether merger is a good idea or not is obviously that the saga has not run its course as yet. We have to give it more time before an easy, certain, or universal answer can be returned to us.

Provisionally, the answer is probably that the idea is good in the abstract but so difficult to realize that few mergers will succeed, and unhappy stories will turn the tide of opinion before the idea gets a fair and honest trial. This issue has many signs of fad about it, and if this is true, then the patience to stay with it will be unreliable and probably short.

On a more hopeful note, it is certainly worth looking at possibilities that are less than all-or-nothing. These might include cooperative ventures, ranging from the informal to the very formal, including such things as help desks that are jointly staffed by computing and library staff, cross-departmental staffing of training courses and orientation-week sessions, and cross-training so that, for instance, library staff can administer their own servers and computing staff can classify and archive electronic files.

In any case, it is also worth remembering that the worlds of work in libraries and computing support organizations are undergoing challenging and stressful changes even before the merger issue comes up. There are undeniable emotional undercurrents in both communities that make this matter more than just an administrative puzzle to solve. ■

***Editor's note**: the article by Joel Cohen and Mark Castner in the October newsletter should have been identified as follows: "Excerpted from Cohen, J.A. & Castner, M. H. (1999). Technology and classroom design: A faculty perspective. In L. Lloyd (Ed.) Teaching with Technology: Rethinking Traditions. Information Today, Medford, NJ, Jan. 1999."*

"Our responsibility is far more than one of passing on to students a skill essential to the workplace or managing this institution with the efficiency made possible by technology. I will maintain that here information technologies should be studied, critiqued, and employed to strengthen our commitment to the liberal arts, strengthen the ongoing dialogue we must have with one another to build a democratic society and strengthen our connections to the global community. Our graduates must be so adept at the uses of ubiquitous technologies that they are masters of its applications and its most effective critics."

John V. Griffith
President
Presbyterian College
Inaugural Address
October 10, 1998

In Future Issues

- *Are college presidents getting smarter about IT?*
- *Running the IT department as if customer service matters*
- *How to make sure the user implementation committee succeeds*

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EDUTECH RESPONDS

Q. I am the director of IT on our campus and although I have tried to get our vice presidents and some other key administrators together to do some IT planning, I am finding it hard to get people interested in joining the planning group. As one VP put it bluntly, "I don't know much about these technology issues, so I'm not sure I could add much. Anyway, isn't that we pay you to do?" Am I rolling a big, unnecessary stone uphill? Should I just lay out the plan myself, and consider it a compliment that the VPs have delegated this area of the campus to me?

A. *Without knowing exactly what issues you were intending to lay before the VPs, let's assume they were the big kind, such as transforming the curriculum through IT; digging up major funding for computer replacement and networking expansion; providing the right kind of support for technology users; providing administrative information on-line to students, faculty, and staff; and maybe even expanding the institution's presence through distance learning. Those are all technology-laden issues, but they don't turn on technical expertise. The way they are addressed will influence the kind of institution you will have in years to come. If the IT department is going to achieve anything in those areas in the long run, it will have to be through strong partnerships with those who lead the major areas on campus. Perhaps you could sit down with each of the VPs and show an interest in their perspective on the institution. What goals mean the most to their areas? Then help them see how the choices the institution is making about technology will affect their ability to reach their goals.*

Q. We were hoping that one of the benefits of our new information system would be less paper. Has anyone achieved this yet?

A. *The "paperless campus" is far from being a reality yet. People need to have paper copies of some documents to make annotations, to take to meetings, to lay out on a desk, or just for ease of reading. However, you might consider alternatives to* automatically *generating and distributing paper documents, such as augmenting or replacing printed reports by electronic distribution; viewing information on screen; printing on demand; and query tools that make it easy to print only the subset of data that is needed.*

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The Pragmatist's Dream

Small Colleges and IT Success

Richard A. Detweiler, Hartwick College

There have been hundreds of thousands of pages written about the implementation of information technology in higher education. And, of course, there are the countless hours of sage advice offered by "experts" in speeches and papers such as this one. Some unknown wise person once said "a closed mouth gathers no feet," and if I were truly sage, I would end my comments now, for there is no reason to believe that my morsels of insight will be better than the advice of those who have preceded me. Yet I feel a compulsion to continue, convinced that I may indeed have something to offer. If the thought in your head right now is "he's a college president, so whether he knows anything or not he feels empowered to speak," I understand your skepticism.

Those who spend a little time with faculty who have made innovative use of information technology in courses nearly invariably have one of three reactions: gee whiz, skepticism, or despair. The *gee-whiz* reaction is the one the technology advocates seek—the sense that something wonderful is being accomplished for teaching and learning through information technology. It breeds a kind of optimism about opportunity and creativity. The *skepticism* response typically relates to one of two thoughts: "I can't believe that it is possible for a normal human like me to use this stuff," or "I don't believe that the use of computers and networks is really good for the educational experience." The *despair* reaction can follow from either of the first two, or can even alternate with optimism in a manic/depressive kind of way. It usually focuses on the impossibility of accomplishing much at one's own institution—

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"Information technology—the network age—is arguably the most significant strategic issue facing higher education today. Why? Because it is so pervasive and it is so transformative."

Molly Corbett Broad
President
University of North Carolina
"The Shape of Higher Education in the Network Age"
Plenary Address
CAUSE Conference
December 1998

NEWSBRIEFS

ERIC'S NEW DOCUMENT SUBSCRIPTION SERVICE

The U.S. Department of Education's Educational Resources Information Center (ERIC) provides a variety of services and products on a broad range of education-related issues, including the ERIC database, the world's largest source of education information. The database contains more than 950,000 abstracts of documents and journal articles on education research and practice, including many about information technology.

With the increasing demand for immediate access to ERIC materials, the ERIC Document Reproduction Service (EDRS) has created E*Subscribe, a new electronic document subscription service which will begin in January 1999. Now in beta test, features of the new service will include unlimited access to the ERIC database and electronic document images; search manager capabilities (save, reactivate, and modify frequently searched topics); electronic delivery in Adobe Acrobat (PDF) format; and ordering capability for documents not available electronically. When the service opens in January 1999, subscribers will initially have access to one full year of ERIC documents; access will expand over time to include document images from 1996 to the present.

For more information on E*Subscribe, call EDRS at 800-443-3742 or see http://orders.edrs.com/members/survey.cfm.

TEACHING AND LEARNING ONLINE

Duquesne University will host "Online Teaching and Learning 99" on March 10–13, 1999 in Pittsburgh, Pennsylvania. The availability of online courses or online support for face-to-face courses is expanding. Demands on faculty, administrators, academic support staff, and students are growing. Skill sets are changing and new strategies are being adopted. This conference, consisting of a set of full- and half-day pre-conference sessions, two days of concurrent sessions in three tracks, and a set of full- and half-day post-conference sessions is designed to help faculty, administrators, and academic computing support staff identify and address these critical issues.

For more information, see http://www.duq.edu/oltl-99-conf.

HIGHER ED CONNECTION TO INTERNET ADDRESSING

Michael Roberts, recently retired vice president of Educom and former Deputy Director of Information Technology Services at Stanford University, has been chosen as the interim president and CEO of the Internet Corporation for Assigned Names and Numbers (ICANN). ICANN is the new non-profit corporation that was formed to take over responsibility for the IP address space allocation, protocol parameter assignment, domain name system management, and root server system management functions now performed under U.S. Government contract by the Internet Assigned Numbers Authority (IANA) and other entities.

For more information on ICANN, see http://www.icann.org.

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Organization(s) in Transition—And Aren't We All?

Seattle, Washington, December, 1998. The final CAUSE conference. For those of us who have been attending CAUSE conferences more or less regularly for fifteen or twenty years, it was hard not to feel just a little nostalgic. An era is passing—one of momentous change, quite a good bit of struggle, some victories, and a tremendous amount of learning. On the other hand, having the perspective of watching this incredible organization grow from a few hundred to a few thousand, successfully transition twice through new leadership, and get itself ready to embark on a new journey into the next century, the nostalgia was also mixed with a lot of excitement and anticipation.

It's all EDUCAUSE now, of course. The new organization, formed from a merger of CAUSE and Educom about six months ago, dedicated to the mission of "transforming higher education through information technologies," is finding its own identity. Many attendees came away from the conference much more optimistic than at any time before that this merger can actually work. The blending of the two cultures—one from a tradition of administrative computing, the other from the academic side—may not be as tumultuous (or as threatening) as some of us might have thought. Yes, there are still a few left in the academic "elite" who view administrative computing as something less than "real" technology [*it's just data processing, after all*], and yes, there are still a few diehard administrative programmers who think the academics are just plain flaky [*what do faculty know about what it takes to run a production system?*]. But in fact, it looks as if the real culture wars now are taking place between technologists and librarians.

It was also the largest conference, by far. Not just numbers of people, although there were surely plenty of those, but also in scope. The issues at the conference, and in fact, the issues EDUCAUSE itself is dealing with, span a very wide spectrum of technological, professional, managerial, and organizational areas.

One of the harbingers of some of the changes taking place at EDUCAUSE is a new kind of publication that has recently become available. *Dancing With the Devil: Information Technology and the New Competition in Higher Education* is a very good book about why technology matters, or should matter, to higher education. (It's a bit confusing as to who exactly did what on this book, since all of the following information is printed on or near the front cover: "Richard N. Katz and Associates" [Richard Katz himself is not identified as either author or editor up front, although it appears he was both; his Associates are not mentioned anywhere further]; "A publication of EDUCAUSE"; "Sponsored by PricewaterhouseCoopers LLP"; "Published by Jossey-Bass as part of their Higher and Adult Education Series." One must read "The Authors" section to discover this publication had multiple contributors to the substance of its actual content.)

Nevertheless, the message is not confusing at all. "Many of us in higher education now wish that we could push the information technology genie back into the bottle, as this technology is raising cultural, organizational, economic, and even survival issues for which the questions far outweigh the answers."

The first and dominant thread, of course, is change. The second is the quasi-monopolistic position of our colleges and universities being threatened. The third is hope—and the capacity to make wise strategic choices. As mentioned above, the chapters have different authors, ranging from a university president emeritus to vendors (with several other types in between), and cover a full landscape of issues: survival, IT as a strategic asset, assessing competition, and usefully, advice for the practitioner.

The best chapter is the first. Written by James Duderstadt, president emeritus of the University of Michigan (a telling point: his name kept coming up repeatedly throughout the CAUSE conference whenever anyone wanted to give an example of a visionary—a president who "gets it."), the chapter asks whether colleges and universities can survive in the information age. The answer, as one might expect, is yes, but only if we respond to the challenges in a very vigorous and determined way.

If you haven't already received your complimentary copy by being an EDUCAUSE member, the easiest way to get a copy is to visit their Website at www.educause.edu.

It's so terribly hackneyed now to talk about the only constant being change, but that doesn't make it any less true. Who knows—or should know—better than IT people how true this is? We simply can't afford to stand still. For the sake of our institutions, for the sake of our profession, and for the sake of our personal well-being, we need to be right at the core of change itself: instigating it, managing it, communicating about it, and smoothing the rough edges of it wherever possible. We need to be there gladly, competently, and successfully. EDUCAUSE will help us do that. ■

The Pragmatist's Dream...

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possibly because of a lack of time or understanding, but most often because of the fact that there is insufficient or inadequate equipment, training, and support staff at one's own college.

Tolstoy once used the words "crude, immoral, vulgar, and senseless" to describe the works of Shakespeare. In doing so he told us something very important: credible people can respond to the same, objective information very differently. My first point regarding information technology and education is the same: all reactions to the educational use of information technology, good and bad, are reasonable and appropriate.

Developing a pragmatic dream

If there is legitimacy to negative, as well as positive, reactions to information technology, why would any rational person choose to invest time, effort, and personal credibility in such a problematic quest? My answer is that if you approach information technology in the right way, you can utilize strategies that will help you accomplish useful outcomes with minimal madness. If you are pragmatic, you can realize dreams.

What is this approach? It is not, in fact, one approach. Rather, the pragmatist asks four questions, questions that must be answered specifically for oneself and one's own institution. The answers to these questions give an understanding of an approach to curricular technology that will work, given the context within which you work and live.

The first question: motivation and mission. Why are you interested in being involved with curricular technology? What kinds of reasons do others at your institution have for being interested in (or uninterested in, or afraid of) curricular technology? What motivates other faculty colleagues—a belief that student learning can be enhanced, an infatuation with techy stuff, boredom with existing methods, or a requirement for tenure or promotion? What motivates the dean—other good schools are doing it, optimism that education can be enhanced, or confidence that this is just the latest ill-thought-out innovation? What motivates the president—a belief that educational costs can be cut, the need to keep up with other schools, or a vision of the future of education?

> ***Those who spend a little time with faculty who have made innovative use of information technology in courses nearly invariably have one of three reactions: gee whiz, skepticism, or despair.***

You must start by literally answering this question for yourself, for colleagues, and for other key influences or influencers which you are able to identify (the dean, the president, students, trustees, an institutional plan, etc.). These key influences/influencers are those who have the ability or power to impact the kind of support which is available for information technology, or who will apply their own standard to assess the value and usefulness of whatever it is you do. From this list of influences/influencers, write a mission statement that describes the purpose for the use of curricular technology. This stated purpose must not violate the motivations of the key influences/influencers; ideally it should be consistent with their motivations; and it must be consistent with one's own motives. Sometimes "blended statements" can be created to build greater support (e.g., improve student learning of basic biological processes and assess whether total costs of instruction in the introductory course can be reduced), but the statement cannot use artful ambiguity to avoid conflict.

The second question: assess vectors and level. Every academic discipline teaches its disciples (that is, each of us who are trained in a discipline) that there exists a linear approach to increasing knowledge or understanding: systematically collect all relevant information; process the information using specialized analytical methods; draw conclusions. We often bring this same way of thinking to our institutions with the belief that there are a series of influences, on and off campus, which are driving our institutions in a particular direction. In fact, as Publilius Syrus said in 42 B.C.E., "it is sometimes expedient to forget who we are." So set aside your assumptions and ask what forces are really impacting the direction of your institution. Many of these forces you have already answered with the first question, but there are other forces that may be operating as well, including

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Richard A. Detweiler is the president of Hartwick College. He created this article is based on his keynote address at the October meeting of the Appalachian College Association.

institutional mission, budget shortfalls, pressures from key businesses, or state policy. Literally list all of these possible forces in a column down the side of a page; across the top put five column headings: institutional, departmental, course, class, and individual. These column headings represent the level at which an information technology project might be implemented at a college: across the entire institution, within the curriculum of a particular department, within a single course, in a specific class session within a course, or at an individual level (with some students on a particular assignment).

Then for each of the possible forces, indicate in every column whether the impact is positive, neutral, or negative for technology implementation. For example, if "severe budget shortages" is a force on your campus, you might indicate that the impact is negative for institutional, departmental, and course implementations, but as neutral for both class and individual implementations (where existing information technology may suffice).

These ratings, then, represent "vectors" in that they indicate the direction of forces as they impact particular implementations. Look down each column and note which vectors can be capitalized upon (positive ones) and which must be avoided whenever possible (the negative ones).

The third question: outcome. Given the mission statement written in the first question, describe one or more specific learning outcomes which will fulfill the stated purpose. Do this for each of the five levels (from question two), with outcomes that will capitalize on positive vectors and minimize the impact of negative vectors.

The fourth question: scenarios. Given the mission statement and the outcomes described, for each of the five levels describe one or more different technology-supported activities or processes that will create the appropriate outcome.

Putting it together: pragmatic dreams

You now have five possible dreams identified, each with a purpose, a scenario which will fulfill the purpose, and a clear outcome. The final step is to identify a pragmatic dream. For each dream, identify what equipment, at what total cost, will be required to deliver the activities or processes described in question four. You may need the help of a technologist to do this, but be sure that you do not inflate your technology needs. That is, while it may be slick to have faster systems or the latest technology, you should only raise the technology bar as high as is truly required to deliver the activities you describe. If the institution, or someone else, wants an implementation that is at a higher level than you require let them take responsibility for figuring out how to pay for that added value. Let your challenge be limited to figuring out how it may be possible to pay for what you need for each implementation.

Do not inflate your technology needs. That is, while it may be slick to have faster systems or the latest technology, only raise the technology bar as high as is truly required to deliver the activities you describe.

You are now in a position to create a pragmatic dream by ranking the dreams you have described by their feasibility, based on the costs you identified as well as potential sources of funding. Which is most possible? Is it the individual dream because you can accomplish something worthwhile with little or no additional expenditures? Is it the institution-wide dream because a small tuition increment for all students is feasible and that will create a substantial-enough pool of dollars? Is it the departmental-level, because a foundation or other donor may well support such an innovation?

Selecting your final, pragmatic dream should not happen in isolation. Given clear statements of purposes, outcomes, ideas about costs, and a range of alternatives, you should be in a strong position to engage colleagues, deans, presidents, and perhaps even boards in useful decision making about curricular technology and your future.

A few examples

Following are a number of brief examples of actual technology dreams which have been realized. Please understand that these descriptions are overly brief and gloss over uncounted hours of hard work and frequent disagreement. Yet each ended up being successful because the dreams chosen were ultimately possible (pragmatic) ones. It is from these experiences, and dozens of others at these institutions and others that I have derived my advice about pragmatic dreams.

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The Pragmatist's Dream...

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Institutional. Fifteen years ago my former institution was in the midst of the demographic decline that plagued much of the U.S. and especially the Northeast. A colleague (Phil Jensen) and I were involved in futures-related research and planning for the institution, and one of the questions posed to us was whether we could put together an idea that would help us deal with enrollment challenges. We concluded that our mission was to raise the perceived value and attractiveness of our university and that the then-emerging information technology was a possibility. We considered various alternatives but decided that the only place that there was likely to be any significant support (positive vectors) was at the level of the senior administration and the board; faculty support did not exist. This suggested that any implementation would need to be campus-wide (institutional level), have a strong impact on interest in the college by potential students (outcome), and that implementation strategies would therefore need to be very visible and tangible.

We proposed, therefore, that every entering student be given a computer and software with a tuition increment for all students paying for it. The senior administrators to whom we presented the idea were enthusiastic, but the president decided that the faculty must support it. Our presentation to the faculty was designed to develop their understanding of the demographic challenges and the budget implications (i.e., budget cuts) while providing them with additional outcomes which they could better appreciate (every faculty member would be given a system; potential for educational enhancement). The supporting vote was with little dissent, and the Board adopted the plan based on its potential for institutional visibility. And once implementation had occurred, the opportunities for educational enhancement created longer-term value.

Institutional. Six years ago my current institution was engaged in a values-based planning process (that is, determining our fundamental motivations and priorities and deciding how those translate into the nature of our educational experience). Among those fundamental values is a commitment to the liberal arts and sciences combined with the belief that we are preparing students for the world of their future. While there was significant faculty interest in information technology, there was no consensus about the role of these tools in education. In the "self-critique" step of our planning process we questioned whether our "education for the future" value was being sufficiently fulfilled. Among the many proposals for enhancing this value was the suggestion that we needed a pervasive implementation of information technology—for it seemed clear that involved, contributing citizens would need to be everyday users of this technology. In addition, a discussion of the role of information technology in the liberal arts and sciences was educationally compelling; fundamental to liberal arts and sciences is the development of competencies in accessing, processing, and communicating information. Information technology clearly is a powerful tool to support and extend the effectiveness of these central educational goals.

While there was discussion of the potential for curricular integration in various courses, there was a clear, widely supported, institutional educational mission which made the massive implementation of information technology compelling. As long as students began to use information technology tools routinely to access information, process information, and communicate, then no additional pedagogical commitment was required to fulfill our purpose. The result was the commitment to provide every student with a notebook computer system as well as full voice/data/video networking for every person. Substantial pedagogical innovation has followed, although this was not, *per se*, necessary to fulfill the original goal.

Departmental. The members of the management department at Hartwick became interested in the value of computer-based business simulations. After initial experience with simulations in several courses, discussions ensued about the potential for fully revising the departmental curriculum based on a learn-in-context approach. That is, if students could, over a couple of years, be faced with the need to make a number of different kinds of businesses succeed (based on sophisticated simulations) then the content of the traditional management curriculum could be delivered to them as they needed it in order to solve particular challenges. Further, if students were to work in management teams as they did this then they would learn additional, necessary, teamwork and communicative competencies in the process. Traditional courses would not be taken but the content would be learned over an integrated two-year sequence. As such, their stated mission was to improve the quality of student learning of the fundamental content of the management curriculum while developing skills in teamwork and communication; the outcome was to learn the concepts and their application as well as communication and teamwork skills. The strategies considered

included having students use their own systems and the network to link them to the shared simulations; however, the need for shifting teams and the use of simulations not designed for network implementation resulted in a different technology strategy being more practical. A special lab was created with each team having its own system. As simulations changed and team membership reassigned, then people were merely assigned to different systems—far more practical than more sophisticated technology-based solutions.

Departmental. Members of the Department of Mathematics at Hartwick shared an interest in having students move their understanding of math from the mechanical (doing calculations) to the conceptual and intuitive (having a sense for how the language of math helps us understand and represent phenomena). They believed that if the entire calculus sequence could be revised such that a symbolic equation software system (Derive) was the normal tool for analysis, then they could use real ("not nice") problems which are not amenable to hand solution, could have lots of "try this" during class time, and could make ready use of graphic representations of outcomes. Their mission, therefore, was to help every student to think like a mathematician; the outcome they desired were fewer blank stares and more intuitive understanding. The strategy they adopted was to license a software package so that it could be used on student notebook computers (bringing these computers to class meant that every class could be a lab and homework done using the same system) and to write a department-specific book for the calculus sequence based on the routine use of these tools.

Course. A member of the Art History faculty at Hartwick wanted every student to see art history within the context of the artistic, social, historical, and cultural forces of the time. As various strategies were considered, the lack of availability of sophisticated computer imaging equipment in sufficient quantity for her students was a clear issue. She concluded that, by using Web technology that virtually any contemporary computer can handle, she could have students learn to see art history within a dynamic context. She revised her basic art history course such that assignments were given on the Web, and all student projects would be completed as Web pages with links to relevant image or other information from archives or museums around the world.

Concluding comments

Samuel Butler is reported to have said, "Life is like playing a violin in public and learning the instrument as one goes." This is an apt descriptor of pragmatic approaches to dreams with curricular technology. There is no one right approach; one cannot plan everything fully in advance; one never knows enough. But given a clear and convincing purpose, a clear and compelling desired outcome, and the use of strategies which are feasible within the realistic constraints one faces, wonderful things can happen. ■

"I don't think students will be happy with computer-graded essays. Students may be content filling in machine-gradable sheets for multiple-choice tests, but they don't want their written work read and graded by machines. After years of being reminded by teachers to consider their audience, students don't want that audience to be a silicon chip. They want to know there's a real person out there responding to them, even if that reader isn't predictable or knowable."

Dennis Baron
"When Professors Get A's and Machines Get F's"
The Chronicle of Higher Education
November 20, 1998

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In Future Issues

- *When doing strategic planning for IT is <u>not</u> a good idea*
- *What, if anything, IT has to do with institutional quality*
- *New system implementation: basic guidelines for success*

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EDUTECH RESPONDS

Q. It is clear to most of us that we desperately need a new administrative information system, but we're having a tough time convincing the college's top administration. They are very concerned that a replacement is just going to be too expensive, so they're trying to hold off on this as long as possible. How can we make a case strongly enough so that they are impelled to act more quickly?

A. *Generally, since resources are an issue, emphasizing the financial side of the big issues can work well. For example, you might bring up how much the current system is actually costing the college right now. Let's just look at the highly volatile area of financial aid. Might you be overpaying a student's financial aid if your award is based on living in a residence hall and when the student moves out during the semester, no one in the financial aid office is notified? Might a student fall through the admissions process (thus losing potential tuition income for the college) because his or her admissions counselor cannot get easy and ready access to the student's financial aid records? Might the college be facing fines when the federal government decides that you are not complying with their financial aid rules? Are you paying for contract programming to build interfaces between financial aid and other offices because the system you are using doesn't have them already built in? How much time do people spend rekeying the same data into different parts of the system? How difficult is it to come up with an effective financial aid strategy for the college based on data from prior years? And so on.... The answers to these kinds of questions for all of the offices at the college may add up to a pretty persuasive case for a new system.*

Q. I am the computer center director at a small college that is trying to re-think its organizational structure. I would like to report directly to the president. Isn't that the trend these days?

A. *We're seeing more of that, although it's too early to call it a trend. More importantly, however, is whether this would be an effective thing to do for your school. That would depend on the president's view of IT, your relationship with him or her, and whether you would be viewed with credibility at this level by the community. Just a symbolic reporting won't really do much.*

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THE EDUTECH REPORT

January 1999

Volume 14
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The Education Technology Newsletter for Faculty and Administrators

Punished For Success

Steven W. Gilbert, the TLT Group

For the past ten years (at least), those responsible for providing technical support for the users of information technology in colleges and universities (and in industry!) have been unable to keep up with the rapidly growing demands for their services. Those who encourage and help faculty members and students to master the basics of using personal computers and related tools are succeeding. Those who encourage and help these beginners to use more widely available and powerful applications of information technology to improve teaching and learning are succeeding. Expectations for what can be accomplished with educational uses of technology are growing rapidly. Support services for these activities are not.

I began worrying and talking about the "Support Service Crisis" in the mid-1980s. Colleges and universities were beginning efforts to train faculty, students, and staff to use "personal" computers. Those responsible for this task soon began complaining about their inability to keep up with the growing stream of questions. In retrospect, I see that I consistently underestimated the impact of the widening gap between expectations and available resources.

Many hoped that the demand for support services would subside as more faculty members moved beyond the beginner stage. However, in the late 80s I began to hear about more frequent requests for more substantial help. As faculty members mastered the basics, some began to expect to be able to use the technology as a more integral part of their own teaching. They needed help to learn how to use "authoring" programs, how to identify the one cable that would effectively connect their own computer with the one projector that was available, how to adjust the computer's

continued on page 3

"I think that IT has great potential to improve teaching and learning, but only if and when the necessary investments are made to ensure that the technology actually enhances education rather than its simply being used to deliver the same old course or to substitute for face-to-face teaching."

Paul Velleman
Cornell University
as quoted in
"Technology, Higher Education, and the Changing Nature of Resistance"
Educom Review
January/February 1999

NEWSBRIEFS

ANNUAL ASCUE SUMMER CONFERENCE

The Association of Small Computer Users in Education (ASCUE) will be holding its 32nd Annual Summer Conference in Myrtle Beach, South Carolina on June 13–17, 1999. The theme this year is "IT trends in the 20th Century: How has IT prepared us for the 21st?" and conference papers will focus on issues in academic and administrative computing that are of interest to small educational institutions. Featured will be creative ways of using information technology and the Web to solve problems or add value to the campus environment, and interesting applications that show where we have been and how it prepares us to go where we need to go. There will also be pre-conference workshops on Sunday, June 13.

For further information, contact Dagrun Bennett, 1999 Program Chair of ASCUE, Franklin College, at (317)738-8150 or bennetd@franklincoll.edu. The ASCUE Website is http://www.franklincoll.edu/ascue.

MICROSOFT ENDS CONTROVERSIAL CAMPUS PROGRAM

The Microsoft Scholars program, in which a small group of higher education information technology professionals were paid $10,000 a year by Microsoft for their expertise and advice in developing new products, has been quietly ended. The program was controversial in that some saw the Scholars as having a potential conflict of interest, since many of them are considered influential in higher education (especially in their role as writers and speakers) but without their connection to Microsoft necessarily being widely known. Both Microsoft officials and the Scholars themselves noted that the Scholars were not asked to endorse any Microsoft products, but rather were intended to be a "brain trust" to assist Microsoft.

For further information, see *The Chronicle of Higher Education*, January 8, 1999, http://chronicle.com.

TECHED99: A HANDS-ON CONFERENCE

Calling itself "the conference for educators passionate about change," TechEd99 offers the chance to see, hear, and touch technology. Included will be continuous displays of exemplary multimedia lesson plans being used today in secondary schools, community colleges, and universities; hundreds of sessions and workshops on timely topics and practices related to enhancing teaching and learning with technology; Sir John Daniel, Vice Chancellor of British Open University, talking about how focusing on learning rather than teaching is as important as new technology; and Sun Microsystems Chief Scientific Officer, John Gage, analyzing the future effect of technology on government, business and education, with special emphasis on the learning paradigm. Both John Naisbitt, author of *Megatrends*, and Glenn R. Jones of Mind Extension University will also be featured speakers.

The conference will be held April 21–24 at the Ontario Convention Center in Ontario, Canada. For more information and to register, see their site at http://secondary.cccf.org/teched/index.html.

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Punished For Success...

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display settings to match the requirements of a particular video monitor, etc.

More recently, as more faculty and students have become comfortable with the use of electronic mail and the Web, efforts to train academics in new applications are meeting with even greater success. But at the same time, IT personnel find they have more machines to support, more complex network connections to maintain, more rapid upgrades of equipment and software to install and explain. These same support personnel have more to do directly with the technology while the number of more sophisticated *and even more demanding* users continues to grow. Mainstream users (as opposed to "early adopters") of technology can become more self-supporting on the basics, but they demand more help as they explore more sophisticated options.

Technical support personnel proudly describe their successful efforts to meet institutional goals to engage more faculty and students in educational uses of IT. The associated punishment for this success is the overwhelming demand for support services.

New conditions

Accelerating pace. Applications of technology—especially related to telecommunications and the use of the Web—that appear to have significant potential for use in teaching and learning continue to arrive at an accelerating pace from industry (the information-entertainment-publishing-technology-telecommunications industries). The software product development cycle keeps shortening. Competition in the "browser wars" keeps new features arriving faster and faster. Most users cannot comfortably adapt on their own. Professional support personnel cannot keep up-to-date.

Greater accessibility. The increasing availability of hardware, software, and "faculty development" opportunities raises awareness, expectations, and demands for support. In the last few years most institutions have made investments that make more computers and related equipment visible and accessible to faculty and students. More faculty and students have moved past the "beginner" level of computer and Internet use. People who know the basics and see more accessible machines are likely to want to try using new technology applications in their own teaching and learning (and other legitimate scholarly pursuits).

> ***Mainstream users (as opposed to "early adopters") of technology can become more self-supporting on the basics, but they demand more help as they explore more sophisticated options.***

Wider, deeper use. According to the latest data (*1998 Campus Computing Survey*), over 40% of undergraduate courses now involve the use of electronic mail for communication among students and faculty in some way. Web use in conjunction with courses is growing rapidly. Dozens of colleges or divisions are requiring or providing computers and Web access for all students and faculty. In many academic disciplines, applications of information technology have been developed that have become essential to the work of that field. Faculty members often feel compelled to include those applications in courses that deal with related topics.

Variety of support needed. It's not only technical support that is needed. The services of faculty development professionals, librarians, disability support professionals, and others are increasingly in demand. Operating budgets and the number of available qualified personnel for these categories fall far short of what would be required to meet the demand for their services. Coordinating related support services can reduce the expectation-resource gap for each, but cannot solve the overall resource shortage problem.

The range and variety of access to technology and training in elementary and secondary schools and in homes is increasing. The variety of experience and proficiency with IT of entering students is increasing. Consequently, the variety and level of technology-related support needed by students is increasing. [Competition with industry for technical support professionals is increasing, and industry is offering them higher and higher salaries.]

Clearly articulating the responsibility for providing basic training and answers to users' questions among the various support service providers is an important step. For many

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Steve Gilbert is president of the TLT Group, the Teaching, Learning, and Technology affiliate of the American Association for Higher Education. This article is based on a recent posting to Steve's AAHESGIT listserv.

The Challenge of

by Albert

There are clearly two points of view about telecommuting these days. One is pretty much an unabashed cheer for the future of work, dominated by new flexibilities and possibilities introduced by the technology that permits telecommuting. The other, a rather opposing one, is borne of a more unromantic view of what happens to telecommuters amid their home-based distractions. I believe that the truth of the value of telecommuting lies in between these two views. Further, I believe that educational institutions are uniquely poised to take proper advantage of the technology.

I have been of the mind for at least ten years that the future of telecommuting is not as rosy as its avid proponents suggest. We have all heard by now the stories like the one of the vice president who has just a few hours before the new sales incentive program is to be announced to all corporate offices when the babysitter calls with the bad news that his young daughter has come down with chicken pox. The vice president, of course, has to attend to this immediately, but because of the wonders of modern technology he manages to rush off for home, go to the pediatrician, go to the drug store, dash back home, put his daughter down for a nap, check his home PC, correct the draft sales incentive program sent him by the secretary, fax it back to his secretary with instructions for distribution as an e-mail attachment, and as he is driving back to work, send a voice message to each of the fifteen offices to alert them to the upcoming communication from his office. And, of course, he beats the deadline. The problem with this rosy scenario is, and as most parents will tell you, it begs the grim reality; the more likely circumstance is that the pediatrician is not as readily available, the pharmacist is busy, traffic is backed up, and the daughter starts throwing up. Not to mention that the company's network is down for a half-hour just as he tries to access the critical document from home.

Aside from all that, there are three other important issues. The first is that most of the enthusiasm for telecommuting comes from professionals whose work is naturally suited to work-at-home (writers, for example), those who may not be as affected by the dynamics of the office. But those dynamics are crucial to any enterprise built of human beings joined in a work effort. What happens in the workplace through idea exchange, borrowed technical tips, joint intellectual discovery and project serendipity is that people work together with and through people.

The second is that the home office is more likely to be the means by which driven personalities can actually work 168 hours a week, and there are companies that encourage that. For many people, however, this can lead to resentment. People need to have time away from the pressures of work, a need especially acute for professional, management, and technical employees.

And the third is that for most people, the home is such a rich environment that its demands intrude upon even the most dedicated worker-at-home.

An interesting article in the *Miami Herald* on January 10, 1999 by Susan Reimer ("Telecommuting not for Everyone") cited reasons that the numbers of telecommuters have not increased as projected: it isn't easy, it can be costly, it is difficult to be off-duty. Reimer closes by saying that the job description for successful telecommuters is terribly narrow: they must be "self-directed, self-motivated, independent, focused, well-organized, dependable, and have solid successful relationships with bosses and co-workers."

The way it can work

Not to belabor the obvious, but there have always been "office workers" who did not work out of an office. Many salespeople have been forced to always work away from the office. Likewise, the executive who brings work home is almost a cliché. Any college professor with a lively interest in the subject matter has always worked at home. For technical workers, the advantages of pagers and home connections are obvious: no longer is it always necessary to go to work in the middle of the night to fix a critical problem. Telecommuting as an idea has been fostered by the growth in knowledge workers who can most benefit as well as by advances in technology that make the process more accessible. Greater convenience and quality in faxing, telephony, e-mail, scanning, printing, copying, and Internet access have contributed to this breakthrough.

Colleges are uniquely poised to take advantage of the best effects of telecommuting. First of all, higher education has frequently been in the forefront of workplace changes, almost by default. The 9-to-5 lockstep has been broken by the need for flexible hours to accommodate students and staff. The first instances of shared jobs came from joint academic appointments. Flex-

Al LeDuc, a winner of the CAUSE ELITE award and formerly with Miami-Dade Community College, is now with Athene Consultants, Inc.

time is widely used in higher education. Workplace diversity was first championed with some vigor by universities. And although there is a general notion that "Casual Fridays" started with business (or L. L. Bean), anyone who has been inside a classroom or office in a university in the last twenty years knows that "casual" is nearly universal. Innovative benefits have long been a feature of work in higher education, starting with the uniqueness of faculty sabbaticals. Today, any enterprise that is forward-looking, conscious of the human element in work, and married to technology solutions in its business is going to see in telecommuting a benefit to be exploited. Higher education qualifies on all counts.

However, there are some cautions that organizations and individuals should be aware of as they think through any new arrangement. Unintended consequences can surprise even the most wary.

Full-time telecommuting is best for individuals whose essential work is solitary. To a degree, this clashes with modern ideas about working within teams, a workplace notion that probably does not travel well to the virtual world. Part of the problem here is social; most everyone needs face-to-face human contacts. A good bit of the problem is also organizational; the nuances of a motivational nudge by a manager do not get properly expressed with emoticons. But a major concern has to be technical; people who work away from other people do not get the same in-depth understanding of workplace tools that they get in working with other people. One way of overcoming the disadvantage of working alone is a tactic many businesses have evolved: a periodic get-together in order to provide the togetherness and synergy even organizations that are not team-obsessed need to have.

The institution has to be prepared to support the worker at home. Here is where I think colleges and universities need again to be pioneers to aid their faculty and staff. This goes beyond just encouragement or sanction to an understanding that all workers are first-class citizens. Colleges and universities are currently working toward student relationships that are not bound by time or place; certainly some aspects of the work within the institution can follow the same principles.

Beyond that, education is now competing for technical staff with organizations that already subsidize telecommuting because they are serious about it. A telecommuter needs equipment and software to enable proper usefulness. A second telephone line often is a necessity, as is a speedy telephone connection. Already today, there are institutions that supply at least some of the following: 1) a personal computer; 2) applications software suitable for individual use; 3) a pager, along with payment of the monthly contract; 4) a cell phone, with payment of the monthly bill; 5) remote-to-mainframe software (both for standardization and security reasons); 6) a modem; and 7) access to an Internet Service Provider.

It is only a small step to where I foresee the day when many colleges and universities supply some or all of the equipment and software to fashion a complete home office as part of the employment contract or understanding. Prices are such that this is now becoming within the bounds of the possible, with the setup of what is called a complete "Soho" (Small office/Home office) to be now less than $3,000. At the very least, a subsidy may be appropriate. As for technical personnel, attracting and retaining them may make such a perquisite a necessity. Enough of them have now got the "goodies" in the "office" office; the next frontier for position satisfaction is to have the "goodies" in the home office.

But it is still worthwhile for us to remember that there is a need for the home-based worker to ignore or overcome distractions. As people become more and more likely to have set up the home environment for a "cocooning" haven, thus separating their home life from their work life, those distractions have a way of subtly impinging themselves. Unusual discipline may be required in order not to pay attention to home and garden needs, pets, relatives, or even HBO.

Conclusion

Telecommuting has many advantages. It is environmentally sound, reducing the need for resource-intensive commuting. It can be job-enhancing, provided that the employee has the discipline to convert convenience to productivity. However, such arrangements need to be undertaken with caution, possibly using a staged approach to make a transition into that type of work from more traditional forms. Some jobs might even transition to full-time telecommuting, in which case there will be a reduced need for expensive office space.

There seems little prospect of telecommuting eliminating the office, and it may not be suitable for particular jobs or people, but it can be of mutual benefit for many institutions and employees if approached carefully and thoughtfully. ■

Punished For Success...

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many institutions, it is useful to develop an ongoing process for defining "information literacy" and the means for achieving and assessing it.

External pressure and competition. External pressure to integrate IT keeps increasing (including political pressure, media pressure, perceived threats of competition). Most academic leaders see signs of increasing competition from providers of various forms of distance education. [**Note**: There is a remarkable ignorance of the degree to which higher education has already integrated information technology into teaching and learning, and the increased costs almost always associated with doing so effectively.]

Faculty rewards and ownership. More academic leaders and board members are encouraging faculty members to use technology in their teaching and to try "distance education." At most colleges and universities the mechanisms for evaluating and rewarding faculty teaching efforts are not structured to recognize the challenges and accomplishments of instructional uses of technology. When calculating faculty workload there is increasing confusion and disagreement about how to count "distant" students.

Developing "distance education" course elements requires the faculty to make much greater use of institutional resources (technical and other) than when modifying or developing "traditional" courses. As a consequence, more institutions are developing policies about ownership of faculty-developed course materials that differ substantially from previous laissez-faire custom. (Usually in the past, faculty members could rightly assume that they "owned" whatever they developed for a particular course). Those who provide support services for the development of new instructional materials (or the modification of old ones) are rarely considered as having any ownership of the results—and they usually don't receive extra rewards for that work.

The problems

This Support Service Crisis is not a temporary aberration; it is a reflection of a new commitment. Higher education has accepted the challenge of adding a new dimension —of integrating information technology in a way that can increase access to better quality ‹ lucation. The potential goes way beyond providing all students with a grasp of the uses of IT tools. Teaching and learning can both benefit from new uses of IT. Greater expectations can only be achieved with greater support services. For the foreseeable future there are no ways in which the uses of the technology itself will achieve significant reductions in instructional costs or reduce the need for professional support services.

> ***At most institutions the mechanisms for evaluating and rewarding faculty teaching efforts are not structured to recognize the challenges and accomplishments of the uses of IT.***

Reorganizing deck chairs on the Titanic. Reorganizing support services can achieve some improvements; but when expectations exceed resources too greatly, reorganization alone is insufficient. When the gap between expectations and available resources is too great (as it is on most campuses), relations between technical support professionals and those who rely on them often become quite hostile. Each experience so much frustration in dealing with the other that they cannot easily recognize their common problem and shared goals.

While there is always hope of finding ways of using technology and reorganizing administrative staff to increase productivity and efficiency, those increases are likely to be quite small when compared with the additional resources needed to develop and support educational uses of information technology. The potential for improving education with technology cannot be achieved without increasing the resources available for supporting its use.

Partial solutions

Communication and coordination. To achieve the full potential of educational uses of information technology, those who provide the relevant support services must be able to communicate more effectively with each other and with those who need their services. Mutual understanding of their shared predicament—of the expectation/resource gap—can reduce the energy-wasting hostility between service providers and "users." Unnecessary duplication of effort can be avoided. The full range of support services must be coordinated and focused on helping faculty succeed in learning how to use new educational options.

The pace of change in the educational role of technology will continue to accelerate in the foreseeable future. Support service providers will not be able to close the gap

quickly, but they can learn to work together and live with constant change more comfortably and effectively

Student (Technology) Assistants. While the needs of students impel the educational changes that result in greater demands for support services, these same students provide the one resource that can partially solve the Support Service Crisis. Most colleges and universities are already using students to help with the more routine and less challenging technology support tasks (such as monitoring computer labs). But a few institutions are now providing more varied and advanced training and supervision for their Student Technology Assistants.

These students can recruit, train, supervise, and evaluate other students; although it is essential to provide skilled professional management overseeing the full complement of student assistants. These student assistants can help their peers and the faculty—and every category of support professionals (library, faculty development, disabilities, etc.) As students gain the knowledge and skills needed for these more varied roles, they have more opportunities to become more active in shaping their own education.

As their responsibilities as technology assistants expand, they also gain unusual opportunities to work more closely and collegially with faculty members. Many students report these opportunities as providing the most beneficial educational experiences of their undergraduate careers.

More resources. Once we recognize the need for larger annual operating budgets for support services, two difficult questions remain What else can the institution give up in order to support the improvement of teaching and learning with technology? What additional resources are available to provide support services for those who are improving teaching and learning with information technology?

Many institutions have already exhausted the options for the first question. Most institutions still lack annual operating budget commitments for equipment replacement, software acquisition, upgrading, training, maintenance, and user support.

Colleges and universities need to include in annual operating budgets and institutional planning efforts funds sufficient to meet the growing needs for professional support services. This is easier to acknowledge than to achieve.

Society must recognize the growing value and costs of widespread academic uses of information technology. Even with better communication and coordination among support service professionals and more widespread and effective use of student technology assistants, the demand for additional support services will continue to grow. It can only be met with increasing societal investment in educational uses of information technology. It is worth it. ■

"Faculty should be as clear as possible about what they want students to learn and how they want students to learn it. Then and only then can one properly think about the contribution information technology might make to this process and how it might help to deliver the course more effectively —or not."

Richard Larson
State University of New York at Stony Brook
as quoted in "Technology, Higher Education, and the Changing Nature of Resistance"
Educom Review
January/February 1999

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In Future Issues

- *Ten things we all used to believe about administrative systems*
- *What the president is looking for from information technology*
- *The changing face of outsourcing: consortium arrangements*

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EDUTECH RESPONDS

Q. It is the feeling of many of us on campus that our faculty are sort of "poised on the brink" of taking hold of technology in a genuine way. There is no question that there has been increasing interest and even usage of technology by the faculty over recent years, but now it seems as if technology might be at the point of really making a difference in the education of our students. Are there things we can do now for the faculty that will make this all seem more like an opportunity and less like a threat?

A. *Two key issues have emerged as being the critical success factors in educational computing. The first is stability and the second is flexibility. By stability, we mean being able to provide a technical infrastructure and support environment for the faculty that is as close to 100% as possible: the network works all the time, desktop computers work and desktop support is fully reliable, classroom environments are technologically up-to-date, faculty are trained to the degree they wish and need to be, and so on. By flexibility, we are referring to the use of technology in the classroom being the choice and option of each faculty member, based on an intelligent and well-informed assessment of all of the possibilities. There are still too many cases on our campuses where the needed stability is not there and where faculty are either forced to use technology in ways that they object to or else the matter is ignored entirely.*

Q. We have a modern, high-quality administrative system and the best hardware platform to run it on. Everyone has good desktop hardware and the training has been exceptional. But for some reason, nothing seems to be working. We have duplicate data all over the place, no one knows how to get the reports they need, things fall between the cracks when data has to be transferred from one place to another, and a lot of people are wondering why we spent all this money for a new system!

A. *It sounds as if you may have found one of the most important factors in system implementations: process. Without a considerable amount of attention paid during the implementation to *how* things will or should work, things inevitably go astray. At this point, you need to concentrate on developing workflows and processes, one by one; you'll see much better results soon.*

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THE
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REPORT

The Education Technology Newsletter for Faculty and Administrators

What Are We Missing in Instructional Technology?

Thomas Warger, Five Colleges

Faculty must surely be more than tired by now of questions about how much progress they've made in adopting instructional technologies. Maybe we should also ask how many make any use of the foreign languages in which they demonstrated competency on the way to the Ph.D. Or about geography, math, or history? Actually, we might be pleasantly surprised... have you ever noticed how many will own up, privately, to being fans of "Jeopardy"?

We might be putting too much emphasis on achieving change in education by watching the progress and plight of faculty. If we take seriously the changing social structure of instruction—faculty more like guides and mentors than wise persons professing in front of a largely passive audience—then we should also move beyond thinking about instructional technology in an excessively teacher-centered manner: *nobody but faculty will help this and future generations of students make sense of the staggering amounts of accumulated knowledge and the equally daunting work of new discovery and invention*. We should instead realize that many of the technological aids already within our grasp can be put to use without ratcheting up the pressure on faculty to become purveyors of technology—or perpetual workshop goers.

What we are doing right

It has not taken great efforts or a long time for Web resources to find their way into many syllabi. With even less struggle, students coming to college with computer competency and academic usage experience look to the Web without being pointed. Network-medi-

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"The roles of faculty members and students will change in this new learning environment .... The more fully engaged student, owing to the active learning facilitated by information technology, will bring a new assertiveness to the faculty/student relationship. Faculty members will move from a position of power and control to one requiring flexibility and spontaneity."

Carole Barone
"The Challenge of the NLII"
CAUSE/EFFECT
Volume 21, Number 4

NEWSBRIEFS

EDUCATIONAL TECHNOLOGY & SOCIETY JOURNAL

Educational Technology & Society is an electronic journal of the International Forum of Educational Technology & Society, created for developers of educational systems and educators who implement and manage such systems. Its goal is to "help both these communities to foster greater understanding of each other's role in the overall process of education, problems faced by each, and how they may support each other." Past articles have included "The role of student knowledge in the design of computer-based learning environments," "VRML - a new tool in biomedical education," and "Information and communication technologies' impact on academic curricula." The April 1999 issue is currently being assembled.

Each online issue includes peer-reviewed papers; book, Website, and software reviews; and invited short articles, comments, vision statements, and descriptions of implementations. The journal is available at http://zeus.gmd.de/ifets/periodical.

DISCUSSION ON SOFTWARE LICENSING

The Software Licensing Constituent Group of EDUCAUSE focuses on "the issues involved in blending the corporate interests of software providers with the unique software licensing needs of higher education institutions." Among the challenges, according to group leader Larry Rapagnani of the University of Notre Dame, are institutional environments in which many users need to use different computers in more than one venue (public lab, dorm room, office, home, research lab), and user identities and software needs change from one semester to the next as students move in and out of the institutions and change courses. Recent discussions have focused on subjects such as e-commerce, electronic software distribution, and software license compliance.

Minutes of the last constituent group meeting in December are available at http://www.educause.edu/memdir/cg/licensing98.html. List archives and information on subscribing to the list are available at the same location.

INTELLIGENT MACHINES: THE END OF HUMANITY?

Several recent books, all written by highly reputed authorities, argue that because of the relentlessly accelerating march of technology, desktop-computer power will, within just a few decades, far exceed that of the human brain, and shortly thereafter will even exceed the collective thinking power of all humanity. They further argue that such thinking entities will merge with nanotechnology and virtual reality, and the products that will emerge from this convergence will be intelligences of an inconceivably powerful sort, leaving us humans behind in the dust. An exploration into these issues will be held on March 6, 1999 at Indiana University - Bloomington.

Issues will include whether "we are dealing with the sublimest of hokum or with something to be taken truly seriously." For more information on the discussion, which features Douglas R. Hofstadter, see the Website at http://www.cogsci.indiana.edu/symposium99.html.

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What Are We Missing in Instructional Technology?...

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ated communication, whether by e-mail, news groups, or other asynchronous means or concurrent discussion forums, no longer merits special mention when included in the work of an academic course. Broadcast or teleconferenced instruction is still a very small share of instructional activity but it has had widespread press coverage. We have also come to believe that all classrooms will need to be adapted for instructional technology. And while training and technical support services still need a larger share of campus resources than they currently receive, the shortfall is generally acknowledged; the problem's existence is no longer news, even where the money is not yet in sight. And, perhaps most importantly, network infrastructure and computing equipment have grown at most institutions to the point where their scarcity is no longer the barrier it once was to implementing changes in instructional methods.

We know that our graduates go into jobs that have been transformed by the information age. Increasingly, we are aware that incoming students are not strangers to technology in their education. The question about whether instruction with technology is better than without is all but moot now that the world does its business (and graduate education and research) via technology; it is the way our students will need to learn.

What we are missing

One thing we could be doing better is preserving students' contributions. It is still rare to find courses where each year's class of students leaves behind contributions that enrich the experience for the next year. Bibliographies at the back of course papers go away with the students. We now have the means to gather and preserve such materials—subject to the consent of the students. Collective bibliographies (maybe with annotations) in a database or math solutions in online problem-set notebooks could easily be more common.

Collaborative work by students in the same class, or different class sections, or at different colleges and universities is also quite easy to promote through means as easy as e-mail. It is surprising that we do not organize Internet forums for students studying Latin poetry, physical chemistry, or any other subject. We know that scholarship after schooling happens this way, and we all have colleagues elsewhere who could join us in promoting online interest groups for topics we cover. The habit of individual work as the basic mode of education dies hard but has been substantially relieved by small-group collaborative projects at all stages of education. But most of these groupings are among students in the same class-section. Imagine the benefits in peer-assistance for courses on advanced or rare topics, where small enrollments often fall short of the threshold for good interchange.

Multimedia "papers" are another neglected extension of now-common technical capabilities into standard academic practice. Maps, diagrams, charts, illustrations, graphs, sound and video clips, Web links, and imbedded comments and questions (as special text or sound recordings) are all available to enhance expository writing. To the inevitable objection that these will distract students from the core of their work—or be used by students to try to distract the grader—we should feel comfortable in replying that learning to use these appropriately and effectively is now part of the educational task. We are reaching a new milestone in computer "literacy" where the ability to make and edit digital materials (photographs, video, sound) will become standard.

A skill analogous to multimedia production is the ability to move information among software tools and environments. The typical college graduate today is comfortable with e-mail, Web browsing, word processing, and—if a science major—spreadsheet basics. Few are able to move data among the standard applications packages, even though these are ever more internally integrated. What is at stake here is simply the efficiency that comes with the mastery of common tools. How many times are charts re-created when they could be converted and integrated into a paper? Conversely, how easy it is to insert tabs between the elements of a bibliographical entry to enable it to be added to a database in which a student collects and saves such information for use in later courses.

For that matter, why has database technology had so little presence in academic work? The contrast between the ubiquity of databases in administrative and business uses and their near-absence from the skills set of faculty and students is puzzling. Their value for bibliographic records-keeping is self evident, but the potential to index, relate, and retrieve factual information should be useful to historians, philosophers, poets—anyone who has ever used 3 x 5 cards. The potential for students to build a per-

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The Best Reason for C
Thinking from Outside I

Hardly any college or university these days is faced with setting up its first automated system for processing campus data. The oldest systems are home-grown ones that in some cases have been around for twenty-five years, sometimes with the original builders of the system still around, keeping it going. In other cases, a school has a commercial software package that is on its last legs: either the company has fallen by the wayside, or the school dropped maintenance long ago and got stuck in a web of local modifications.

The looming threat of complications when the calendar clicks over to 2000 has motivated many institutions to look at replacing their current systems. But even if a college has dodged the Y2K bullet, there are many other motivations for moving on. For instance:

People keep complaining about the flaws in the current system and may even be using those flaws as an excuse to cover other kinds of problems not related to computing. Management is getting tired of defending the current system.

The keepers of the current system are approaching a time when they might leave or retire, leaving the current system unsupported.

From the top down, the mandate has come to improve the effectiveness of the information management system. Sometimes this is precipitated by a dramatic event that highlights the lack of adequate safeguards or monitoring abilities (i.e., A Really Big Scare), or by a demanding project such as a capital campaign, or by the arrival of a new administrator or trustee who places a high priority on information.

There is a creeping embarrassment about the dated nature of the current system. Sure it works, but it has begun to look more and more retro when compared with the software people use all day on their microcomputers. Oft-repeated phrases in the press seem like personal rebukes to the system: "intranet," "graphical user interface," "client-server," even "relational database." It's time to catch up.

Reasons like these may help stimulate a change. But, as anyone who has gone through a software conversion will honestly tell you, there is so much effort to doing it right, and so much pain to doing it wrong, that you need institutional motives strong enough to sustain you along the journey.

> ***What many of these services have in common is the paradigm shift from administrative offices providing information to a self-service model where constituents can access information themselves.***

There are three important groups of reasons for converting to a new AIS.

Efficiency. A new system will help the institution do its business faster and more accurately, with less reliance on human brawn. Those most involved: institution staff who carry out day-to-day operations.

Management. A new system will aid the institution in planning, monitoring, and guiding its operations to make better use of its resources and more effectively move toward its goals. Those most involved: the institution's executives and those who provide them with analytic data, such as institutional researchers and budget directors.

Service. A new system will improve the services the institution provides to its most important constituencies and even make new kinds of services possible. Those most involved: students, faculty, staff, alumni, community members, and those who concern themselves with delivering the services that are demanded by the institution's mission.

The first two reasons, efficiency and management, have been clear for a longer time than the third. They arise out of the inner needs of the institution. This view sees a new AIS as a gift the institution gives itself, even if the goal is to help the institution ultimately do a better job. This is thinking from the inside outwards. To move to the third reason requires a flip in vision.

From the outside in

Service becomes the focus when you think from the outside in. Instead of asking what kind of tools we need to do our current job better, the service approach asks what kind of service do our constituents need and deserve, and what can we change to serve them better.

If you ask students what they want from a new AIS, you may hear this: to select courses without lining up at the registrar's office, to check on the charges on my account, to see the status of my financial aid, to

nverting to a New AIS Rather Than Inside Out

find out my grades. Faculty will answer: to find "all about" an advisee while the student is sitting before me in my office, to obtain up-to-the-minute class lists, to simplify paperwork by submitting it online. Alumni may want to have a direct way to change their address for the alumni magazine, to make a gift, or to get contact information about their classmates.

What many of these services have in common is the paradigm shift from administrative offices providing information to a self-service model where constituents can access vital information themselves. Vendors of new AIS systems will certainly make much of their product's ability to create a self-service virtual campus. The institution itself, however, may have to do some thinking to decide whether these new features are really compatible with its core values.

Reasons to not change

One reaction that is frequently heard is this: Our institution has always prided itself on the personal touch. We don't want to lose contact with students, substituting a cold, mechanical computer for the individual concern provided by our staff. Why, the registrar (financial aid director, bursar) even keeps a jar of candies on the desk just to lure students into the office! If we have online registration, for example, students will no longer get expert counseling from their faculty advisers. If students can remove an academic hold by paying a bill online, we'll never get to talk to the student about the problems that might have caused the hold in the first place.

This is one of those fallacies-wrapped-in-a-truth. Of course individual attention is important. Smart institutions are finding mechanisms for providing it other than force feeding it by making students jump through red-tape hoops. These institutions have decided that this is not an either/or situation. The system can provide rich and up-to-date information to students when they need it, not just during business hours. Complementing this service, the campus staff can direct their personal assistance to those students who have more than routine problems.

Of course individual attention is important. But smart institutions are finding mechanisms for providing it other than force feeding it by making students jump through red-tape hoops.

A more practical worry is that self-service information systems will throw everything out of kilter by wresting the dissemination of information out of the control of the offices that are responsible for it. For instance, the financial aid office may worry that students will look at their information before packaging is complete, or a dean may worry that students will see that a class is not filling up and stay away for fear it will be canceled. There is an important principle to be established here: *the flow of information should be controlled by institutional policy and not by the way the software is designed*. Following this principle, making sure that the new package allows the financial aid office to determine when each student's award becomes viewable online and making sure the registrar can control which course information is displayed is important. The goal should be to select a system that allows fine-grained control over who accesses what information, and when.

Another practical concern is the Mickey Mouse problem, the fear that allowing online data entry by students, applicants, and other clients will invite frivolous and fake data entry. A good modern system will protect you from this, permitting the use of PINs for known users and allowing review of input from unknown users before it is posted to the system.

Perhaps the most worrisome exposure for self-service systems is the danger of unauthorized access. But campus information systems can be protected by the same means that protect Web commerce sites. What if the system crashes, now that everyone is so dependent on it? Not skimping on technical staff, implementing best practices and proactive safeguards for operating the system, and establishing alternative processes so business can be carried on with manual methods while the system is unexpectedly down will help manage this risk.

Serious resistance to self-service systems may come from a less recognizable source. Such a change in service philosophy may seem to change some people's jobs and responsibilities in an unwelcome way. Work may shift between departments and boundaries may get blurred. And some people will simply regret the greater reliance on

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sonal knowledge and reference base over several years of study seems appealing but has been tried only rarely.

Revival for former commonplaces

Some traditional and sadly neglected skills—once hallmarks of education—are ripe for revival with a boost from information technology. Scanning and other digital technologies have been a boon to cartography and geography. Photocopying never truly sufficed as a technique for the replication of maps, but the scanner and the Web have made high-quality maps, both old and new, amazingly accessible. These materials could be re-integrated into instruction, this time in the hands of students rather than existing only as textbook pages or classroom props.

Public speaking by students as an instructional goal has been in eclipse. But effective oral presentations have never been more important than now in work and study beyond college. Presentation software and Web pages could easily serve as supports for students presenting their work to peers in class or symposia.

Materials traditionally withheld from students because they were too rare or fragile to be handled are increasingly available: scanned manuscripts and rare printed materials, as well as artifacts in museum storage. Before the advent of textbooks and mass-produced illustrations, first-hand examination of primary materials was more prevalent in higher education. Now, with digital images, quantities of materials previously reserved for examination by only a few expert scholars are becoming accessible. Many of these have not been previously catalogued, or at least not included in public catalogs. As a result, they have been outside the mainstream of instruction, including the education of those who are now faculty.

Suggestions by discipline

While the above thoughts apply across the curriculum, some special technologies merit consideration in the context of a narrower range of academic topics.

Web radio (streaming audio produced by broadcast radio stations) is growing quickly around the world and provides an excellent source of reality to supplement language instruction as well as courses in political and cultural studies. News broadcasts from foreign sources can also be an invaluable source of information not covered by the U.S. press and of perspectives not represented in our journalism. In the same vein, many newspapers now publish substantial articles and summary coverage of daily news for access via the Web.

Geographic information systems are making their appearance in the fields of geography, geology, environmental studies, and health studies. But this technology has also become widely used in governmental agencies and social work organizations. The combination of cartography with data-representation has a potentially powerful impact for the social sciences, and particularly for the re-casting of methods for studying statistical data, such as the census. To date, the penetration of GIS into the undergraduate curriculum has been largely confined to those disciplines that have always overlain data on maps. The opportunity to extend that usage into sociology, history, economics, urban studies, and other disciplines is available.

Statistical computing has long been a support problem on campuses, in large part because of the variety of packages in use. Mathematicians, sociologists, economists, and others have had differing views on what is needed. The latitude allowed faculty to decide on statistical software as individuals has compounded the problem. Some students have had to learn as many as three or four packages during their college career. But an impressive amount of descriptive and comparative statistics can be done in common spreadsheet software, giving us the opportunity to consider agreement on a common starting point for statistical calculation and introductory instruction, even if discipline-specific needs for specialized programs assert themselves at higher levels of study.

Conclusions

The need to train and support faculty in the development of instructional materials continues. But the equipment, software, networks, and student skill levels prevailing now also allow us to take a wider look at options in instructional technology. We have also learned that only a small number of faculty will choose to become multimedia programmers, impelling us to seek benefits that need less faculty investment.

It is perhaps time to take some of the pressure off faculty (and the technical staff who support them) by shifting attention to what it is that students need to be learning via technology. To some degree, we need to ask this question in order to prepare ourselves for the changing expectations that high school students are already bringing to campus. And, as increasing numbers of students return to college after time in the workplace, they, too, bring to campus experience with common information tools and methods we have been slow to adopt. ■

Thinking From Outside In Rather Than Inside Out...

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computers. It is best to confront these effects head-on during a very participatory campus-wide selection and implementation process.

The payoff

Once you have set out on the path toward self-service, you can start to provide new services and combine old services in new ways. For instance, if students are maintaining their own directory information online, they can also be given the power to control the dissemination of that information with more refinement than was practical before when changes had to be made by campus office staff. By clicking check boxes on their own control screen, students could determine which bits of information they wished to allow others to see. They might want their campus extension to be displayed in the online directory, but not their home phone, for example. Students could also allow some of their information to be accessed only by people on campus. This access control would only affect the public directory, of course, and would not alter the ability of the appropriate campus offices to call up the information.

The integration of services from the client's point of view that marks this new model also invites an examination of how services are parceled out among various administrative offices. Are there rules that only exist because of the way your institution is organized? For instance, has anyone on your campus ever told a student something like this: "No, sorry, you'll have to go to the registrar's office to have that hold lifted after you've made the payment in the bursar's office"? You may want to recombine responsibilities after you've looked at your activities from the point of view of the client trying to get something done.

Can an old information system learn new tricks?

It is easy to underestimate what it takes to convert an old-style, transaction-based system into the kind of self-service system we have been discussing. (This holds true whether you are thinking about retrofitting your current system or are evaluating a commercial system that has been quickly made over.) Simply adding a browser "front-end" to a database does not automatically create a system that allows clients to become managers of their own information. What ties together the database and the user interface is the most important element of any sophisticated information system: the business rules and processes. These are the underlying programs and algorithms that determine the chain of events that gets triggered when someone initiates an activity. In earlier systems, much of this logic was contained in the brains of those who used the software. These human wardens knew that if they changed something Over Here, there were three or four Over Theres that needed to be taken care of as well. Dropped a course? Someone was smart enough to check how many courses you had left and to make any necessary adjustments in financial aid, housing eligibility, and maybe even your meal plan.

If your system is going to be an effective self-service environment, all that awareness of rules and consequences has to be built into the system, and the results have to be effectively communicated to the client. An alternative design is that the system alerts a human counselor who then takes over in dealing with the consequences.

Trend or vital evolution?

Some of those responsible for campus information systems are duly skeptical of what seems like much ado about colored screens, icons, and mouse clicks. Often decades and whole careers have been invested in adapting software to campus policies, whether that software was developed in-house or purchased. Sober people are right to want more reason than mere good looks to change the whole fabric of information management on a campus.

But many schools have concluded that there is something to the new service model that touches their main mission. They have also come to understand that higher education now works within a larger context. The expectations our constituents bring with them are set by the range of services people use in their daily lives, off campus. Institutions of higher education, as examples of complex service organizations, are being judged by comparison with the best services that are offered in any field. And those are getting better every day. ■

In Future Issues

- *Ten things we all used to believe about administrative systems*
- *What the president is looking for from information technology*
- *The changing face of outsourcing: consortium arrangements*

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EDUTECH RESPONDS

Q. I know that a fully integrated administrative system from a single vendor would be best for my campus. But some department heads are arguing in favor of the best-of-breed approach, mainly because they are concerned that a single system won't give them what they need. How do I address this issue?

A. *The good news is that in modern integrated packages today, there is a high amount of consistency in the quality with which each of the core elements is supported. It used to be the case that choosing a package meant making substantial compromises for the offices in which the package had weaknesses—a package might have been very strong in accounting, for instance, but less effective for student records. As the packages have matured and become available to a much broader base of institutions, this is no longer as true. A careful selection process should yield a system that everyone can live with.*

Q. We use students in the computer center, but only in a very limited way. With the current problems in hiring full-time professional staff, we're thinking of expanding our use of students to cover more areas. Some of the staff are reluctant, though, based on difficulties they have had in the past, mainly with students not showing up when they were supposed to. Is there a way to manage this so that the students are more reliable?

A. *Employing students is an increasingly popular strategy for providing needed support services to the campus community. It is, however, not easy to do and needs a great deal of management attention to do it well. Students, of course, have priorities other than their part-time jobs, and the computer center will need to come up with mechanisms to make sure that the right students are in the right jobs and that they are motivated to work in a highly professional way. Providing them with decent wages, a professional working atmosphere, a "career" ladder they can step through while employed by the computer center, and a level of responsibility commensurate with their talents and experience are all ways to help make this happen well. Another advantage, by the way, is that graduating students can be a good source of full-time employees, already experienced in the ways of the computer center.*

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The Education Technology Newsletter for Faculty and Administrators

The Case for Boole-A-Base

By Howard Strauss, Princeton University

Eighteen months ago, the IT department of Euphoric State University (ESU) adopted Boole-A-Base (BAB) as its only supported desktop database product. It chose BAB because BAB was a full-featured database product complete with an object-oriented macro language and a compatible interface to the other desktop applications that ESU now has installed on nearly every faculty and staff desktop. BAB was a giant step up from File Manipulator and Processor (FMP) and Queries By Exertion (QBE), the two previously supported and widely used desktop database products at ESU. ESU's IT team had recently adopted the industrial strength database package Prophet for University-wide applications. Since both Prophet and BAB use SQL, BAB databases can easily be migrated to Prophet if that ever becomes necessary.

The ESU IT team knew that the switch to BAB would require a great deal of effort on the part of both the IT staff and ESU's users, so there was a lot of planning and gnashing of teeth involved before making the transition. The IT team felt that the necessary training for users in BAB was beyond anything that they or ESU could do themselves. Therefore they contracted with a certified BAB training organization to train about two dozen key users in twenty critical departments. These trained people would train others as necessary. They also obtained a site license for BAB and installed it on all desktop machines even somewhat likely to use it. Concurrently, all of the help desk staff was given extensive training in both BAB and in FMP to BAB and QBE to BAB conversions.

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"There is a need and a place for both education and training. To create excellent Web-based training is possible and may even be cost-effective if the learner base is large enough. Web-based education is in its infancy and requires interpersonal interactions that the Web does not now easily facilitate. I am not referring to 'collaborative learning,' which can be achieved through electronic communications such as e-mail chat rooms and bulletin boards. I am referring to the personal discourse, group and classroom discussion, and mentoring, needed particularly by less mature and experienced students."

Robert S. Tannenbaum
"Education or Training"
Educom Review
January/February 1999

NEWSBRIEFS

NORTH CENTRAL ASSOCIATION ACCREDITS ON-LINE UNIVERSITY TO GRANT DEGREES

Jones International University, an entirely Internet-based institution, has been accredited by the North Central Association for Colleges and Schools to grant degrees. It is the first such institution to receive accreditation.

The University sells on-line courses designed by professors from prominent institutions and taught by part-time faculty members. The degrees offered are a Bachelor of Arts and a Master of Arts in business communications; the University also offers several certificate programs. Courses are aimed at adults who have attended college but have not completed their degrees. A typical three-credit course is offered every four weeks, lasts eight weeks, and costs about $600.

For more information, see http://www.jonesinternational.edu.

REALIZING THE PROMISE OF ADVANCED NETWORKING

The EDUCAUSE Networking '99 conference, "Realizing the Promise of Advanced Networking," will be held April 28–30, 1999 at the Renaissance Hotel in Washington, DC. This long-running annual networking conference is the premier conference on federal policy affecting networking and information technology for higher education. Featured speakers this year include Senator Conrad Burns, Robert Khan of the Corporation for National Research Initiatives, and Milo Medin of @Home.

Presentations and discussion will focus on federal telecommunications law and regulation, federal funding for information technology science and research, industry perspectives on technology policy and updates on the hottest topics in Washington telecommunications and Internet policy.

For more information and to register for the conference, see the Website at http://www.educause.edu/netatedu/contents/events/apr99.

SEMINARS ON ACADEMIC COMPUTING

The Seminars on Academic Computing, better known as "Snowmass," will be held this year in Snowmass Village, Colorado on August 6–11. The theme this year is "Strategy, Technology, Organization, Relationships, and Mission (STORM!)." Included are the Directors' Seminar on August 8–11, the University Executives Seminar on August 6–8, and the Practicum in IT Leadership on August 7–8.

Plenary sessions will include "The Internet Revolution—Technology Drivers," by Judy Estrin, Chief Technology Officer and Senior Vice President for Business Development at Cisco Systems; "Remaking the Academy in the Age of Information: 21st Century Challenges to Higher Education," by Jorge Klor De Alva, President of the University of Phoenix; and "A Trilogy: Remember, Reprise, and Remarks," by Jerry Niebaum, Assistant Vice Chancellor for Information Services at the University of Kansas.

For more information, see http://www.educause.edu/sac/sac99/sac99.html.

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Articulating the Mission of the IT Department

Transition and change in IT departments is as common as white bread, but it doesn't always happen smoothly or happily. Bringing academic and administrative computing together into a single department, for example, is usually a difficult endeavor. Reorganizing a department to provide a higher or more effective level of services is another disruptive undertaking. Even just introducing the new position of chief information officer can cause trauma in an IT department.

One thing that can help is to take some time at the outset to define and articulate the mission of the resulting IT organization. This is a great opportunity to make it clear to both the IT staff and the users what IT's role is within the institution and to delineate its contributions. It also provides a rationale for making the changes in the first place.

Items to be covered in the mission statement should include:

Who are our users? Most IT departments can readily identify the "obvious" users: faculty, students, and the staff in administrative offices. In fact, this list needs both deepening and expansion to distinguish among different user needs. For example, a faculty member will need a different approach to IT training than a staff member will. Intermittent users of technology are different from routine users. Non-traditional users are fast becoming part of the client base: alumni, vendors, prospective students, parents, attendees at the institution's various cultural and sports events. Administrative departments outside the "core" offices served by the typical information system are increasingly interested in being supported by the IT department.

Defining and describing the full spectrum of users is an important first step in providing a full range of services.

What do we provide? Making clear what the various service offerings are is another important step. Requests that are both predictable (such as monthly reports) and unpredictable (such as classroom setups) need to be accommodated, and the ways in which that is done should be clearly spelled out. For some users, a specific menu of choices will be the right approach.

> ***This is a great opportunity to make it clear to both the IT staff and the users what IT's role is within the institution and to delineate its contributions.***

For others, service level agreements will be more appropriate. Either way, making sure that user expectations for service and output are realistic and achievable, and clearly articulating what is expected of the users to be able to do for themselves, will be a substantial step forward.

How do we provide our services? It should be clear to all users what the procedures are for making a request, whether for a report, a new function, an upgrade to desktop hardware, or expanded printing capability. To whom the request should be directed, the format of the request, and how long it will take to fill should be well known to all users. There should be a formal and widely publicized process for tracking requests, assigning priorities, and keeping users informed.

What are our priorities? A reasonable starting point in thinking about priorities is to assume that demand is infinite, and the resource supply is finite. No matter how large the staff or how abundant the technology resources, demand will always exceed supply. Therefore, a systematic, objective, and impersonal way to rank the requests for service and outputs and determine which are the most important is needed. Declining to provide service should never be seen as a personal choice on the part of an IT staff member; it should be the result of an institutional determination that other service requests take priority at that moment. This priority system should be developed in conjunction with the users and communicated clearly and continuously.

How do we measure our performance? There should never be a point at which user dissatisfaction becomes so high as to be seriously problematic. The best way to prevent this is through continually monitoring user satisfaction levels in a formal way and taking the steps necessary to improve performance as soon as those levels begin to drop.

Creating a mission statement can signal to the users a new approach to customer service, with the goal of strengthening the attitude of professionalism and partnership. In most cases, users do not have a choice about where their IT services come from, but it's clear that everyone benefits if the IT department behaves as if it had outside competitors. ■

The Case for Boole-A-Base...

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While there were the expected delays and problems in switching databases, the adoption of BAB went smoother than anyone expected. In fact, eighteen months after the decision to switch to BAB, the number of users and applications using BAB was threatening to overwhelm the BAB IT support effort. Before the IT team could formulate an appropriate response to the growing problem, Liz Kravtiz in the Dean of the Faculty's office and an early adopter of BAB, organized an ESU BAB users group consisting of every BAB user and support person she could find. To their first meeting she invited some key IT staff members including the head of the help desk, the manager of the data warehouse, the head of academic computing, and the manager of the advanced projects group. The first few items of their preliminary agenda (shown below) reflected their concerns about the adequacy of IT BAB support.

The BAB Users' Group Agenda: 1) What each of us is doing; sharing projects 2) Training staff in BAB 3) Hiring and using BAB consultants; obtaining programming help for BAB 4) Lack of IT support; what to do about it; what we need.

Liz Kravitz was amazed to see the huge turnout. More chairs had to be brought in to accommodate what would otherwise have been a standing-room-only crowd. As the representatives from over thirty departments introduced themselves and briefly explained the BAB projects they were working on, it became clear that BAB was being used quite differently than FMP and QBE. While those early database packages had been used for simple supplementary office systems, BAB was being used to implement critical mainstream office functions of great complexity. Even more surprising, a few departments were using BAB to implement university-wide systems. No one but the central IT office had ever done such a thing before.

The Projects

The Registrar's office was tracking signups for limited-enrollment courses. Another of their BAB databases kept track of departmental honors, and yet another tracked student applications to professional schools. The Dean of the Faculty's office was building a system that determined what resources (computer equipment, CD-ROMs, furniture, etc.) were allocated to faculty members. Another BAB application allocated graduate student salaries to various research projects, and yet another tracked the search process for each open faculty position.

In the College of Fine Arts, every department seemed to have a BAB database that included machine-readable copies of students' major projects. A similar database was being built in the College of Architecture to track each student's development and to have an on-line, searchable version of student portfolios. Every department represented had at least one BAB database that tracked departmental honors, awards, and achievements. Managing graduate student research was another area where BAB databases were becoming critical. And nearly every department represented had a shadow purchasing database underway to do more detailed tracking than the central MIS systems provided.

While some systems were quite small consisting of just a single table or two, one system had 60 tables, 80 reports, and almost 400 different queries! Almost all BAB systems consisted of an amalgam of local data such as departmental honors, and data obtained from the central data warehouse system or from other central MIS systems. While the central systems had layers of security and record-level authentication, the derived BAB systems tended to be much more open. Also, in almost every case, a change in the layout of central system data would require revisions to all BAB programs that used the data elements or tables that were changed.

In the past, the data in these supplementary FMP and QBE databases had been updated once a week or so and printed reports had been distributed to those who needed them. BAB was being used quite differently. Data were entered continuously from many networked departmental computers. Printed reports were still produced, but most of the database queries were done in real time on-line.

The Training

While a few departments included staff with IT skills, most did not. FMP and QBE had been handled by clerical staff that had shown some interest and aptitude and had received some cursory training. While more extensive training had been available for BAB, for all but the simplest projects the users who had managed FMP and QBE found BAB —even with the extra training— more advanced than they could handle. Even running some of the BAB systems was technically challenging for the support staff in a typical academic department.

Departments with more technical people fared no better because they

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tended to take on more challenging tasks. While clerical people struggled just to decide on reasonable database table structures, in departments with IT people, whole systems that included many macros, scripts, multiple databases, and automated tasks were being proposed and implemented. In all of this, there was concern about security, authentication, authorization, data integrity, backup, backout, and the rest of the issues any professional database designer would worry about. Usually, however, these issues were mostly ignored because of their difficulty and because there was simply too much else to do. And furthermore, these systems ran just within a single department so it appeared that the data security threats were not that pressing.

Everyone knew that more training was necessary, but they also knew that most of the people who were working on BAB were not really programmers and would likely never be able to do macros, scripts, and the like. Also, when these people were doing BAB stuff, they were not doing the work they were actually hired to do, and that work had not gone away. If anything, BAB systems created much more work.

The group felt that the training problem could not be totally solved by even the best training and support. Departments without IT people needed some now, and those with them already needed more of them, and more skilled people at that. Of course they did not have the budget to hire them.

Hiring and Using BAB Consultants

Since hiring new people was out of the question for most departments, many had taken to hiring students or consultants to build their BAB systems. Graduate students were more reliable and seemed more BAB savvy, but undergrads were cheaper. Unfortunately only juniors and seniors seemed able to handle the complexity of BAB, and they soon graduated; often before a project was done. No student provided enough documentation and every new student had a long getting-up-to-speed period that slowed the project down and upped the cost. And getting students to do a real needs assessment that included actually talking to end-users seemed more than one could ask for. Many departments told tales of projects that never came close to working or that worked badly. Also, competition for students that knew BAB was becoming so intense that they were demanding higher hourly rates mid-project. Many departments suggested that the central IT group could hire, train, and manage a cadre of skilled BAB student consultants who could work on departmental projects. It would be nice if IT would pay for them as well.

Departments with more complex needs and bigger budgets had hired outside consultants. It was discovered in the meeting that several departments had hired the same consultant who was implementing similar systems for several departments. Another department had learned that their outside consultants were actually some IT people from a nearby community college and that they were using a few of Euphoric State's IT programmers as consultants.

In every case, the use of consultants was quite expensive, though the quality of the work was fairly high. But it quickly became clear that the systems they built could only be maintained by the consultants who built them. And the consultants knew little about the central university systems already built and, worse yet, about those being planned. There would never come a time when the departments or the central IT staff would ever be able to take over these very complex systems. Thus departments were developing a long term dependent relationship with a group of consultants. Much of this dependency was caused by the departments lack of experience in managing software contracts and projects.

Lack of Information Technology Team Support

A survey was handed out by the IT team to get a better feel for what they were up against. Laughter erupted when the question "What is your current budget for BAB database development?" was asked. Few departments had any BAB budget. BAB was just one more thing they somehow had to fit in.

The question, "What can IT do for you?" caused quite a stir. Dave Marlin from Facilities pointed out that after projects were done they often didn't work quite right and no amount of effort seemed adequate to fix them. "Why can't IT give us some people to look at a finished project and help us to get it to work?" This remark seemed to open the floodgates.

"Why weren't there naming conventions for database fields?" IT protested that there were such standards, but no student or consultant seemed to know about them. In fact there were many standards, conventions, and plans well known to all IT folks that BAB users and consultants never heard about.

"There are features in BAB that we have never been able to get to work and that we probably don't under-

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stand. Can't there be an IT person available to explain these to us as we hit them?" "We'd like IT to add security and authentication to our systems." "We'd like IT to help us plan our systems. Getting some planning done early will save us tons of work." "We'd like IT to work with our consultants. We don't really know how to manage a programming project." And so it went, with users asking IT to take over every aspect of the BAB work, except, of course, for centralizing and controlling the project itself.

Only one person had a success story. Sue had just recently been hired by the School of Scholarly Studies (SSS). Her first job was to convert an alumni FMP database to BAB. It was clear to her early on that converting it would take months of tedious effort. She then discovered that there was a central database that contained all but three of the fields in her database. Indeed, her database extracted most of its information from the central database. Not understanding how silly the suggestion was, she asked the central DB folks to add her three fields to their database. Of course they refused.

But Sue did not stop. She talked to the VP for computing, mentioned the problem to the VP for alumni relations, and showed her managers that the conversion would tie her up for most of a year. Finally she was able to convince someone in the MIS department and the three fields were added. Suddenly the database was no longer needed at SSS since they could use the central database. Sue thought this was a wonderful outcome and wondered why the IT managers weren't more receptive to this kind of solution.

Sue's story was quickly dismissed by the IT people in attendance. What had happened with her was an anomaly and really had nothing to do with supporting BAB. The next question on the survey was presented and the group proceeded to engage in a lively discussion for the remainder of the meeting.

What's an IT Group To Do?

The BAB software deployment seemed too successful to the IT group. Now that they had unleashed this monster there seemed no affordable way to support it. Even simple BAB projects rapidly grew and as they grew they inevitably required extensive use of links, macros, and system design and integration. While in the beginning, it looked like BAB could be used by anyone who could master a word processor, it turned out that BAB actually required real programming skills; something found in few departments. No help desk support could completely solve the problem, but if the problem were solved, extensive additional help desk support would be needed. Departments needed systems analysts and programmers. Often they needed many of them and needed them full time for extensive periods. Jumping into systems that had already been built would be a disaster. IT had to intervene during the earliest planning stages to ensure the project would be successful and would fit in with other University systems.

One idea was for IT to hire and manage a group of students, consultants, and full time BAB designers. These people would be charged out to departments who needed BAB help. IT would train them, pay them, and ensure that what they did was consistent with central IT goals and systems. But the cost of hiring and managing such a group was prohibitive—even if departments would agree it, which it appeared they would do only if IT absorbed most or all of the costs of these people.

While IT saw the downside of BAB's success as the danger of many departments clamoring for IT support that IT could not afford to deliver, there was a far worse downside. BAB's success was causing data anarchy. Independent University and departmental systems were being designed haphazardly by people without any real depth in system design or programming. Although departments were proving resourceful in creating systems with what seemed like few resources, in fact the systems they were building were far too expensive. Many departments were duplicating the same work, many systems had false starts and had to be rebuilt, and departments were pouring resources into BAB that should have been going elsewhere. However, as expensive as the systems were to build, the real costs of these systems were looming later as they inevitably would tangle the University in a data jungle that would require extraordinary effort to cut through. No future central innovation in managing data would be possible with this myriad of independent systems in place.

Analysis

IT cannot afford to provide the BAB users with the support they need because IT has tried to turn their users into advanced database designers and experienced object-oriented programmers, and that is not possible at any cost. Many clerical folks will never become programmers even if they had they had the desire, and many academics, although expert in their own fields, will never code even a simple macro. IT has required their BAB users to understand the inner workings of complex IT systems when all they really wanted to do was to manage

their offices. The result has been anxiety that will soon evolve into chaos.

People who want to commute between their offices and homes are not required to learn to be auto mechanics, yet that is like what IT is asking of its users. Worse yet, they are asking each of them to build their own engines and cars. Even if IT could train them to do this, users would crowd the roads that IT could not afford to build, nor could IT build them quickly enough. Instead of teaching commuters to build and maintain their own engines, we could just teach them to drive. And then we could put them in smart cars that are easy and safe to drive. But better yet, we could just teach them where the bus stops are and provide superb public transportation. Not everyone can or will use buses, but adding buses and bus lanes to our highways is something we can afford to do and something that directly addresses our users' needs to just get to work.

> *If—and this is a big if—the central systems can meet the data needs of departments, the users will cast away their database templates and consultants with gusto.*

IT already has the equivalent of a public transportation system. It is the central databases and warehouses and their associated systems that are a valuable institutional resource. It has been a long historic struggle to change data from a personal or departmental resource to an institutional one. The advent of personal computers should have made sharing this resource easier and thus more effective. It should not have, as was done at ESU, been the reason to turn this resource back to departments and individuals.

IT needs to regain control of this resource. The needs of the BAB users should be examined to see what changes to central systems would obviate the need for user departments to build their own. The best way to support BAB development is to make it so that departments no longer need to do it. Will there be departmental revolts if this is done? No, departments never wanted to be in the software development business anyway. If—and this is quite a big if—the central systems can meet the data needs of departments, the users will cast away their database templates and consultants with gusto.

Realistically, not every department's needs will prove appropriate for inclusion in the central systems, but the number of these exceptions must be kept low. For most exceptions, the IT team needs to build BAB tools for both users and programmers. To be effective, both users and the IT team need to be armed with the best software tools. The user-level tools would be used by users for simple systems that do not fit within the central IT systems. The programmer-level tools are for more complex systems, and they will be wielded by the IT team, not by users.

In all cases, the IT team will not be able to anticipate or code every possible user report and data manipulation. Here again what is needed is good software tools that will leverage the distributed nature of today's computing. The IT team needs to turn control, display, analysis, and management of institutional data over to the departments and people that are authorized to have it. It must not give to users the design and programming of systems that manage, secure, authorize access to, and maintain the integrity of institutional data.

How can IT afford to support the BAB users? Only by getting them to stick to their knitting and by having IT assume its traditional responsibilities. The BAB users group actually grew out of the IT team's abdication of its responsibilities. By understanding the real problem and providing the real support its users need, the IT team will add real value to ESU and avoid the hopeless task of trying to support its users in doing something they should not be doing anyway. ■

In Future Issues

- *How the self-service movement is affecting administrative information systems*
- *Should there be a baseline technology skill set for faculty?*
- *Outsourcing IT: where, when, and why it might make sense*

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EDUTECH RESPONDS

Q. Everyone is talking about the "staffing crisis" in higher ed information technology departments. It's too hard to compete for the right technical people and if you do get them, it's too hard to hold onto them. What about the possibility of user departments hiring their own staff? If a technical person has the right experience and is inclined toward a certain kind of work, this direct end-user contact—actually living in the user environment instead of in a computer center—could be a significant enticement.

A. *This can be an effective strategy, so that instead of funding all positions centrally, departments could hire and train support staff who will be closer to and thus more responsive to their needs. And, as you say, it could provide an attraction for the right kind of person. But—and this is a large but—these staff must be linked to the computer services department in some way. It's too easy to have this mechanism serve as a way for end-user departments to go off and do things that are not necessarily in the institution's overall interests. The user-department-based support staff must be thought of as distributed, not decentralized, a distinction that has very important implications. Even though they are serving local needs, they need to be doing so under an "umbrella" of support that ensures that services are consistent, unduplicated, and all moving in the same direction.*

Q. Our president is new (she was president of a similar college just before this) and in looking over our information technology situation, she has indicated her wish to make some changes, including combining our departments for administrative and academic computing. She has described this model to us from both her previous institution and what she says is the trend in higher education. It is not clear to many of us why we would want to make this change. Is it really a trend?

A. *It is the most frequent and common response to limited resources; combining departments is usually done as a cost-saving measure, designed to reduce redundant effort and so on. However, there is no single model that is right for all institutions, and providing effective end-user services—often the result of having separate departments—should be just as important as providing the services efficiently.*

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